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THE MEDICAL DIRECTOR OF THE WORLD'S FAIR.

The office of Medical Director of the World's Fair will be an important one. Not only will the best plans for prompt medical and surgical relief be required, but there should be the greatest care for the best sanitation during the building, grading of the grounds, and the perfection of the general arrangements.

We suggest, first, that the office be created with a full sense of the responsibility attached. There will probably be more people here during the hot season than have ever been assembled in mid-summer in this latitude. An epidemic of a large number of fatal sun-strokes or a great accident, would be disastrous beyond compute.

To avert such a possibility there should be the best methods for securing plenty of pure water, good drainage, cool rest-places, and stations for medical and surgical emergency cases. Not only should there be a director, but he should be provided with a large corps of competent assistants. For climatic reasons, as well as for many others, the medical staff cannot be organized too carefully.

The medical director should be the most available and the most efficient man that it is possible to secure. He should have had experience in this work. He should be one who is willing to sacrifice something, if need be, for there will be a vast amount of work, and the office will be no *sinecure*. He cannot be entirely guided by the experience of the directors of other expositions, for the conditions here will be unusual.

Such an office should command a good salary. The service that is demanded cannot be given by a mediocre. It should be of the most intelligent, practical and scientific order. Most of all, the office should not be filled as the result of petitions, personal influence or political favoritism. We want the best man for the place, and the profession of the city will do well to see that only the best man gets it.

Some correspondence following the above editorial in our last issue furnishes food for further comment. We were not aware that we were trespassing on the confines of "a still hunt," or jeopardizing any individual expectations. This is an appointment that should be fully discussed

and carefully made. Favoritism should have no place, and "wire-pulling" no value. The physician who is appointed will have to sacrifice his time, money and effort. He may have some return in the prominence given to the office, but it is not likely to be a full return. The salary attached, ample as it should be, will not equal the expenditure. The man who seeks the place for selfish purposes, should he get it, will be disappointed.

We repeat that the office of Medical Director of the World's Fair is a most responsible one. The physician who is chosen for it should be a man of executive ability, energy and experience. It is not so necessary that he should be an accomplished surgeon, physician, or even sanitarian. It would be well if he could be all of these; but he will be able to secure the services of experts in these departments. He himself must be, first of all, a director, *a man of proven executive ability*, one who can select and utilize others, who can recognize important indications and find men to meet them.

We have been asked: "Have we a candidate?" Yes, we certainly have. He is the man whom the directors will choose after a careful investigation of his fitness, regardless of his influence, social position or ability as a "rustler." He is the man who will be deemed most competent to conduct and direct the affairs of this important position without reference to his personality or association.

A correspondent asked us: "Can you name such a man?" No; but he will be found. *Let the place seek the man, and the right man will get the place.*

W. P.

THE STUDY OF PSYCHO-PHYSICS.

One of the signs of the times is the movement now on foot to establish a laboratory for the study of psycho-physics as a subdepartment of the Department of the Interior at Washington, D. C. Thanks to the foresight of men who see the importance of this study, the project has been favorably considered and only needs favorable endorsements to further its accomplishment when it will be presented to Congress for action. The purpose of this laboratory will be the extensive study of criminology in all its phases, the compiling of statistics on the subject, and the publication of dissertations along the same lines. Such experimental work as comes within the sphere of the subject will also be done.

It cannot be too strongly recommended. We are in need of all the knowledge that can possibly be massed together on this subject. This knowledge can be massed in no other way than by such a laboratory, operated by the government, under the executive management of experts in psycho-physical study, with sufficient lay help to accomplish results in fairly good time. Every day sees some new advance in the sociological aspect of this department of science. Since the first writings of Lombroso, decided progress has been made along these lines.

Not only will criminology in its relationship to psycho-physics be studied, but also the subjects of the pauper and defective classes of society.

It is becoming a serious problem of the day for us, and the growing evil must be handled. In no better way can it be handled than by a careful consideration of the present status of these classes, consisting of statistical tables showing percentage and etiological factors, where it is possible to find them. Once this is carefully done, then will measures looking towards the relief of these conditions be in order, just as other scientific problems have been successfully treated in the past. First of all, however, we must have information and cogitation. Then can measures looking towards their relief be enacted, and some sort of an Utopian improvement hoped for and accomplished.

TETANUS TOXIN.

In these days of toxins and anti-toxins, constant work is being done in efforts to promote the cause of humanity by finding biologic cures of deadly diseases. The disease tetanus is one with which the bacteriologic world has been wrestling for some time, in an endeavor to cure it by serum therapy. Some good results, it is claimed, have been obtained in the treatment of this disease by the anti-tetanic serum. In severe cases, however, but little good has been accomplished, owing to the severity and rapidity of the effect of tetanus toxin on the central nervous system.

Anything that relates to the serum therapy of this disease is interesting, and we note in this connection some excellent work which has been done by Ransom, of Marburg, in Behring's Institute of Hygiene and Experimental Therapy (*Berliner klinische Wochenschrift*, No. 13). The experiments performed by Ransom were on the subject of the manner of absorption of the tetanus toxin: whether through the blood stream or through the lymphatic system. The experiments were conducted on dogs, and in this way: The thoracic duct and an artery were laid bare and connected with canulæ; tetanus toxin in definite quantities was injected into the skin in the left inguinal region. At stated times, varying from fifteen minutes to five hours, the lymph from the thoracic duct and the blood from the artery was tested for the presence and quantity of toxin. It was found that the toxin invariably appeared first in the thoracic duct fluid, usually in fifteen minutes from the time of injection, whereas it was much slower in appearing in the arterial blood. From this experiment it is evident that the tetanus toxin goes first into the lymph vessels and thence into the blood stream, not direct into the blood circulation. Subcutaneous injection of the toxin showed that it appeared very slowly in the lymph and blood streams, probably due to the resistance encountered in the lymph glands, which act as a barrier against its resorption. Another experiment made was the subcutaneous injection of the tetanus toxin into the left breast muscle of a pigeon. Five days later the pigeon died and its muscle was subjected to analysis. It was found that the major proportion of the toxin remained in the muscle at the site of injection, a small part was found in the rest of the muscle tissue, and only a very small quantity was

found in the blood serum of the muscle. It was also found that the spinal cord substance was particularly receptive to the tetanus toxin when injected into the cord, much more so than the brain substance.

These researches are highly interesting, and are very much in order in our work on searching for the cure of this deadly disease. There is much room for work along the line of improvement in the administration of what we now call the anti-tetanic serum, and there is much more room for work along the line of increasing the potency of the serum which is to ultimately prove the "cure-all" for tetanus, if that idea will ever be reached.

THE HEATED TERM.

The all-absorbing question with many who live in the larger cities and towns is: "Where shall we go for the summer?" Did it ever occur to our readers that home is a pretty good place? Let us take the case of the average summer "resorter." He must go somewhere during the heated term. He always has gone, and it is only a question of where to go.

If it is a matter of pleasure or needed rest, go; but from the standpoint of health, consider it before deciding. With proper care as to food and clothing, the frequent use of the bath, the avoidance of ice water in quantity, long rides in the evening on the street-car (which is the best, cheapest and most independent vehicle when it is not too crowded), and a letting up a bit on business worry, even the hottest summer can be endured with comfort.

Contrast this with the burden of travel, the possibly indifferent form, the inconvenience of the usual summer hotel, the high nerve-tension of the overcrowded resort. Then there is always the "hot spell" to be endured in September or October, after the return, and which is all the more oppressive to those who have been summering in cooler regions.

It may be well for those who have the time and money, who have the responsibility of little children, or the handicap of poor health, to go away; but even they should not sacrifice too much of home comfort for the uncertainty of summer travel. If it is a necessity to go away, then prolong the vacation till the temperature is lowered at home before returning.

From personal observation we are inclined to believe that those that stay at home may have as good a time, be at least as comfortable and as fit for the work of the rest of the year, as those who go away. We speak also from personal experience, having tried both thoroughly and under the most favorable conditions. Hereafter it is possible our summer vacation will be at home. (Unless it gets too hot!!)

THE AMERICAN MEDICAL ASSOCIATION MEETING.

The annual meeting of the American Medical Association will take place at St. Paul, Minnesota, June 4th to 7th. The selection of this city a second time as a place of meeting for the association is perfectly proper, inasmuch as it is an ideal spot for the holding of conventions; and, besides,

is a central point from which excursions to interesting points can be carried out after the day of adjournment of the convention. Arrangements of the executive committee and the program committee of the association demonstrate that this meeting will be well worth the attendance of every practitioner who can possibly get away for it. Railroad rates will be reduced, and thereby one considerable item of expense lowered for those who live long distances from St. Paul. It cannot be too urgently recommended to the physicians of this country that they should lend their support to this association above all others, and that support can be shown in no better way than by attendance on and discussion of the valuable papers always presented at their sessions. Every one can find something in one of the numerous sections which will interest him, and often afford him information well worth the trip to acquire. At these meetings the specialist from the city joins arms with his colleague from the country; each can lend the other assistance, and each can leave the meeting mutually benefited by the contact. The differences between country and city practice are admittedly great, but interests are the same, and both the city and country practitioner are working for the same end—the cure of disease. Another point that will interest and benefit all is the pathologic exhibit, which is year by year becoming known as one of the leading features of the convention.

STRIKES AMONG MEDICAL MEN.

The physicians of Leipzig have “gone on a strike” for higher wages. This announcement reached us through the daily press some time ago, and later advices confirm it in every particular. It seems that the medical rates in Leipzig, as they are in nearly all the German cities, are ridiculously low; so low, in fact, that it hardly seems possible that even a small proportion of the practicing profession there make a living from their daily toil. It struck the writer as a peculiar fact that in Germany the physicians are very poorly paid. The explanation for this can be found, first, in the existence of so many free polyclinics, and, secondly, because there are so many doctors practicing in that country. While it is understood in the German cities that only the poor and indigent are to expect free treatment at the polyclinic, still we have often seen cases of supposed poverty treated in these places where it was clear that the applicant could well afford to pay a physician.

It is not at all strange, then, to see why the physicians of Leipzig have at last declared themselves. There is no reason to doubt that they will carry their point if they stick together. It is within their power to eliminate one factor in their lower pay—*i. e.*, the free clinics. When we come to a discussion of the rights of physicians, in so far as whether or not they should refuse sick people treatment when the fee was not forthcoming, then truly are we in a quandary as to what we should say. It seems hard, indeed, to think that a person seriously ill should be refused attention by a medical man because his “union” declares that no one should

be treated until higher pay was received. And yet this is exactly what a strike means; and it is this fact to which labor leaders ascribe the success of their "hold-outs." Ergo, we must confess that from the standpoint of humanity, the right is not with the might of the physicians of Leipzig in this instance, much as we wish them well in their efforts for higher pay. Their policy, strictly adhered to, would mean a descent of the profession of medicine to the level of the trades, which should not be. We would recommend that the physicians of Leipzig would organize to combat the cause of their downfall, and should seek to remedy the fault in another way than by "striking," so that suffering humanity, miserly and ungrateful though it sometimes be, may still receive that attention which it is their right to demand and receive from our hands.

CONGRESS OF TUBERCULOSIS.

The Second Annual Congress of Tuberculosis will convene in New York, May 15th, coincident with the meeting of the Medico-Legal Society. All the classes interested in the enactment of laws looking toward a suppression of the dread disease have been invited to attend and co-operate with the members. Sanitarians, lawyers, physicians, governors of the several States of the United States, Canada and Mexico, have been invited. The movement is certainly in the right direction and should certainly culminate in decided results. That tuberculosis is a communicable disease, and that through its communicability it is increasing rapidly in all quarters of the globe, goes without saying. It is also true that, looking at the matter from the standpoint of public health, rigid measures of control can cut it down and eventually exterminate it. Why not, then, should this be done, and that, too, immediately? The dread scourge is upon us, and unless we rise up and crush it, it will crush us. By means of preventive legislation much good can be accomplished. First of all, the indiscriminate spitting of tuberculous people can be stopped and thereby one of the principal means of communication of the disease shut out. Then, again, by proper laws tuberculous patients can be housed in suitable climates, where their own best interests and that of the community can best be subserved. Again, by legislation, we can prevent the marriage of tuberculous people and the element of heredity stamped out forever. The question resolves itself into an enlistment of the attention of the laity in the importance of the question and their hearty co-operation in enacting laws relating thereto. To this end it should behoove the profession of medicine to lay the matter before their patients and friends in a clear light, so that all may realize what the disease really means and what urgent necessity there is for immediate action. A broad policy of education of the masses in these facts as to the cause, the danger, and the remedy for a factor in diminishing the spread of tuberculosis, it seems to us, should take precedence over the enactment of laws for drastic measures. Let these two plans stand in this way: First, let us educate the masses,

and then let us act drastically. If we proceed to act with drastic measures before their minds are ripe to the exigencies of the occasion, then will we be met with that blind prejudice founded on ignorance and rank sentiment that has ever opposed measures of public health. Ignorance, superstition and bigotry have ever been the foes of humanitarians. Let us first conquer these foes, and then we can proceed with ease to conquer the dread scourge itself.

TYPHOID BACILLUS IN WATER.

It is a matter of common knowledge that the typhoid bacillus in drinking water is the favorite method of the production of epidemics of the disease of typhoid fever. The instances of typhoidal pollution of drinking water are numerous in medical history, beginning with the memorable epidemic at Plymouth, Pennsylvania. Strange as it may seem to the medical man who has done but little work in the identification of bacterial species, the fact must be stated that it is one of the most difficult problems in laboratory work to positively identify the bacillus typhosus in drinking water supposed to be polluted by it. In fact, so difficult is it, that when a water worker is confronted with the task of analyzing by bacteriologic methods a sample of polluted water, he aims more to find that index of water pollution by human feces, the colon bacillus, than to waste time and efforts in looking for the typhoid bacterium. There are few instances on record where reputable workers have actually found the typhoid bacillus, even though they were almost positively known to be present.

It is with considerable interest, therefore, that we read an account of the finding of the typhoid bacillus by Fischer and Flatau (*Centralblatt fuer Bakteriologie*, etc., Bd. xxix., No. 8). These investigators examined water of a well whence water had been used among families in which typhoid fever broke out. The bacillus which they found in this water corresponded, from a cultural and morphologic standpoint, to the bacillus typhosus. It also clumped in the presence of typhoid fever blood. Isolation took place on a five per cent. carbolic acid gelatin medium. The method of Levy and Bruns for isolating this species was negative. These men are really to be congratulated if they have really found the bacillus typhosus in this instance. It is a source of joy to the hearts of those who have struggled with this problem to find that occasionally—rarely, we might say—this discovery is made.

A NEW METHOD OF BLOOD STAINING.

Willbrand recommends a slight departure from the usual eosin-methylene blue method of staining blood specimens (*Deutsche med. Wochs.*, No. 4). To the following solution, 50 per cent. solution of eosin in 70 per cent. alcohol, equal quantity of concentrated watery solution of methylene blue, for each 50 ccm. add 10 to 15 drops of a 1 per cent. acetic acid solution. The preparations are placed in this solution and warmed until

gas bubbles come off. The erythrocytes are stained red, the nuclei dark blue, the neutrophile granules violet, the acidophiles red (eosinophiles), and the Mast cell granules intense blue. The *technique* is simple and results are good.

This is a very good change for the better in the ordinary eosin-methylene blue preparation of the blood, and shows quite a good picture for the hemotologist. By the addition of the acetic acid to the stain as ordinarily used, the several pictures detailed are presented, and that, too, in an easy manner. Care should be exercised in the heating of the specimens, however, as artifacts are liable to be formed and may prove misleading.

MISSOURI STATE MEDICAL ASSOCIATION MEETING.

The next annual meeting of the Missouri State Medical Association will be held at Jefferson City, Mo., May 21, 22 and 23, 1901. The program of the meeting promises that the affair will be a banner one in the history of the Association, and will even eclipse the meeting which was so successfully conducted at Mexico last spring. Every member of the profession in the State who is eligible, should see to it that he attends this meeting. Aside from the excellent papers and discussions which will be heard, the timely questions of the day which are of much importance to the practicing profession of the State will come up; legislative problems looking towards the betterment of the status of the profession are in order, and there should be a concerted movement on the part of all to lend their support to all such questions. It is but once a year that the medical men of this State have an opportunity to convene, and certainly the few days of the meeting will not take any man from his practice too long to render attendance impossible. It is simply a question of taking the initiative on the part of the individual members of the profession. It is "up to them" to do so.

CLINICAL LECTURE.

CLINICAL LECTURE ON SURGERY.¹

BY WILLIAM L. RODMAN, A. M., M. D.,

Professor of the Principles of Surgery and Clinical Surgery at the Medico-Chirurgical College, Philadelphia.

THE first patient we will bring before you to-day is a case for the radical cure of hernia. In the first place, you see a great many operations performed for the relief of hernia at this and other clinics, but you are not to infer on that account that an operation is the only cure for hernia. As a matter of fact, the majority of cases of hernia are not operated upon. There are many cases where the application of a properly fitting truss will effect a cure. A majority of children under ten years are cured by wearing a suitable truss. The application of a truss to an adult may afford relief, but I do not think a cure is ever effected in this way in patients over thirty years of age.

The patient who is about to come before you is a barber by trade, is necessarily on his feet a great part of the time, and his hernia is getting to be a source of great inconvenience to him. Again, he finds the wearing of a truss is a constant hindrance to him in his business. There are better reasons for a radical operation than the mere inconvenience caused by wearing a truss; one important one being that men cannot enter a public service, such as the army, navy, or marine corps, if they have a hernia. But the government no longer debars a man who has been successfully operated upon for hernia. Again, a man's business may necessitate his traveling long distances on the train, away from relief, and there is constant danger of strangulation; such a man should be advised to have a radical cure performed. So much for reducible hernia.

In all cases of irreducible hernia, a radical operation should be advised, unless there is some positive contra-indication. The contra-indications for an operation are as follows: *First*, if the patient is very old and the hernia large; and, *secondly*, if there be any accompanying visceral disease, as of the liver or kidney. Barring such conditions as these, all cases of irreducible hernia should be submitted to a radical cure. Now, what is the difference between reducible and irreducible hernia? In the first place, the reducible returns into the abdomen when the patient lies down, and can be retained to a degree, if not entirely, by a truss. An irreducible hernia, on the other hand, never leaves the scrotum, and a truss would be out of the question. Now, if the hernia remains outside, adhesions take place and the gut remaining there in an exposed condition, there is danger of in-

¹ Delivered by Professor Wm. L. Rodman at the Medico-Chirurgical College, and reported expressly for INTERSTATE MEDICAL JOURNAL.

flammation, incarceration, and rupture. Therefore, it is quite a different proposition for a man to go about with a large irreducible hernia than with a reducible hernia that can be kept in place by a suitable truss. The dangers are so great in irreducible hernia that all authorities agree that an operation should always be done unless there is an important contraindication.

Now as to the methods for radical cure of hernia. It would be impossible for me to describe all the operations. I will simply describe Bassini's method, which I consider the best. In Bassini's operation you practically construct a new canal, and change the existing order of things entirely, and a recurrence of the hernia is unlikely. In fact, Bassini's operation imitates nature by making a new oblique canal for the cord. An objection to Halstead's operation is that the cord is placed immediately beneath the skin, where in Bassini's the aponeurosis of the external oblique muscle covers the cord.

The steps of the operation are as follows:

Make an incision four or five inches long parallel with Poupart's ligament. This will practically extend from the external abdominal ring to the anterior superior spinous process of the ilium. This cut exposes the aponeurosis of the external oblique muscle. You then slit up this aponeurosis on a grooved director. The upper part or flap of the aponeurosis is then dissected upward and the lower flap downward. The cord is now drawn out and separated, with the sac, from the surrounding tissue, and, later, separated from the sac. In oblique hernia the cord is behind the sac. The sac having been dissected out and isolated is now opened. Never neglect the precaution of opening the sac, as it is possible that the bowel or vermiform appendix may be lying within, in which case it would be cut in the following step. The neck of the sac is now twisted and ligated and then cut off below the ligature. The cord is held up and kept in the upper angle of the wound, whilst the principal step of the operation, the formation of a new floor for the cord, is proceeded with. This new floor is made by suturing the conjoined tendon to the deep shelving of Poupart's ligament, beneath the cord. You must look out for the deep epigastric artery when passing your suture. You might also very easily injure the femoral vein. I usually place five, sometimes six, sutures in constructing a floor for the cord. The divided aponeurosis of the external oblique is now sutured over the cord, thus forming the anterior wall of the new canal. The wound in the skin is closed in the usual way.

In performing this operation use the fingers as little as practicable, as it is never possible to sterilize the hands as thoroughly as instruments.

You have possibly heard it said that the term "radical cure" is a misnomer, inasmuch as returns are frequent. Such could truly be said ten years ago, and I, myself, had little faith in the operation at that time. Improved methods, with perfect asepsis, have altogether changed the situation. Primary union I will not say is a *conditio sine qua non*, but I will

say that it is most important. In my own series of about one hundred Bassini operations, all have recovered, and so far as I know (and my cases have been followed with care) there has not been a single recurrence. Bull and Coley, of the Hospital for the Ruptured and Crippled, New York City, have had the largest experience of any other two surgeons in this country, doing, between them, considerably more than one thousand Bassini operations. Recurrences having been very infrequent, you are therefore justified in advising the operation, because, in the first place, it is comparatively safe, and, in the second place, a permanent cure is almost certain.

Bassini, in all of his cases, uses silk as a suturing material; and I must say that I, myself, have used it with satisfaction in very many cases. I am not one of those who believe that it cannot be buried successfully. I have repeatedly buried it in this hospital at this clinic, and have had no trouble whatsoever, save in one case, where there was a sinus for several weeks, until one of the sutures was discharged. Kangaroo tendon I have used a great deal as a suturing material. I like it. It buries well, and is sufficiently abiding to insure firm union between the musculo-tendinous structures brought together. Latterly I have been using silver wire. I believe that, all things considered, it buries better than other substances; and as my cases have thus far been most satisfactory, no pain, no sinus or other disagreeable incident following its use, I shall continue to give it the preference. You know, gentlemen, that many years ago, before asepsis was dreamed of, Marion Sims and others were advocating the use of silver wire in gynecological practice particularly. There must be, in the substance itself, that which has caused it to be preferred by so many surgeons. At Johns Hopkins Hospital, Baltimore, its use has been very general for some years, and the surgeons not only think it superior to other substances, but in talking with my friend, Professor Welch, than whom there is no greater pathologist, I was told that investigation had there been made which assured him and others that there was something in the silver wire antagonistic to suppuration. This cannot be explained; but I was certainly impressed with the statement, as I would by any, coming from such a distinguished source.

I close the aponeurosis of the external oblique muscle by interrupted sutures of chromacized catgut. The continued suture I sometimes use, but really think the interrupted better, allowing, as they do, for drainage; and that, in some cases where much traumatism has been practiced, is advisable. The skin is brought together with catgut. The dressings are not changed for a fortnight, unless they should be soiled, or the temperature should rise, or other symptoms which indicate an untoward course in the wound. It is always best, in my judgment, to keep a hernia case in bed at least three weeks—better four, especially in those who are relaxed or from any condition are a little below par. I attribute much of my limited success in this operation to the fact that I never allow patients to get up sooner than three weeks, and only of late have I permitted them to get

up so early. An increasing confidence in the operation has led me to shorten my time from four to four and one-half weeks in bed to three or three and one-half, owing to the age and general condition of the patient. Formerly I continued a compress after the patient left my hands. This same increasing confidence which I feel in the operation has caused me to discard compresses, bandages, or trusses of any kind, in all cases operated upon during the past five years.

At some future time, when occasion offers, I shall take pleasure in pointing out more fully the indications and contra-indications to a radical cure operation; but, in general, remember that the more active the life of a patient with hernia, the more prompt should he be to seek surgical aid. Particularly is it best that to laboring men, who partly from indifference, more from an inability to provide themselves with suitable trusses, should this advice be given. If you have a patient who is a banker or professional man, leading a sedentary life, with intelligence and the ability to wear suitable trusses as you will direct, there is not the same imperative need for an operation as in the first case cited. But, as optimistic as I am in certain cases, I have very positive convictions that radical cure operations should not be done many times where they are.

CASE 2.—The next case is an unusual one, and I therefore bring it before you. Three weeks ago to-day this old lady, who is seventy-six years of age and weighs more than two hundred and twenty-five pounds, was brought to the hospital suffering from a strangulated umbilical hernia. The hernia was very large—in fact, enormous—and had long been irreducible. She was previously operated upon, some four or five years ago, by a prominent surgeon of this city. The symptoms of strangulation were most marked. She was vomiting copiously, and shock was as pronounced as I have ever seen it. She was at once prepared for operation. On account of her age, the long-standing irreducibility and the large size of the hernia, I was perfectly content to complete the operation with a herniotomy, or, in other words, relieving the strangulation. In fact, I had said to my assistants that I would make no attempt at a radical cure, as her condition, all things considered, made me think it inadvisable. After cutting into the hernia, however, and relieving the strangulation, which was complete, three feet of intestines being in the tumor, I found that the adhesions were more easily broken up than I had anticipated, and I also found a large mass of omentum in the sac; so I changed my plan and supplemented herniotomy by a radical cure. A very large piece of omentum was resected, and the adhesions broken up and returned to the abdominal cavity; then I resected quite a large piece of the abdominal wall upon either side. She has not had a single unpleasant symptom since the operation. Her temperature, as you see from the chart, has never been above 99°. Her pulse has always been below 80, and the wound united *per primam*, or by first intention. I have never had or seen a more gratifying case, as she is a most intelligent, respectable and appreciative patient. It

is my very great regret that I did not think of having the photographer get a good picture of this very large hernia before operating. Time was important, however, as it always is in hernia, especially umbilical hernia, on account of the tense, unyielding nature of the umbilicus; therefore, the thought of a photograph escaped me until I was ready to begin operating, and I did not then feel justified in waiting.

It will be my pleasure, from time to time during the year, to bring before you cases after they have been operated upon, so that you may follow them up and know how they are one week, two weeks after the operation. Few stay with us longer than the latter term.

Erysipelas is treated with almost uniform success in the City Hospital by the local application of equal parts ichthyol and collodion. The inflamed surface is painted liberally, and the application extended an inch beyond the spreading margin. The patient, of course, presents an unsightly appearance while he is under treatment, but no other method has been found so satisfactory, and it seldom fails to control the disease at once.

Severe neuralgias may frequently be relieved by simple acupuncture. The skin overlying the seat of pain is pierced through and through by a needle, which is allowed to remain in place three to twenty minutes. The relief experienced (due, no doubt, to an irritation of the nervous terminals and a modification of the circulation) lasts for about ten hours. Persistent migraine has been successfully treated on the same principle, by the introduction of a tape seton through the skin at the back of the neck. These surgical methods are worthy of a trial when other means have failed.

Hydrotherapy is constantly gaining ground in the estimation of therapists. The *Medical Standard* makes the sweeping assertion that water is a better antipyretic than aconite or phenacetin, a better analgesic than opium, a better sedative than the bromids, a better cathartic than calomel, a better heart tonic than digitalis, a better diuretic than buchu or potassium citrate. This universal and sovereign remedy is certainly coming into more general use. The laity are not quite prepared to submit to treatment by pure hydrotherapy. They must have medicine; but the intelligent practitioner, who knows the value of water, can easily "medicate" it sufficiently to satisfy his patient and insure its free use.

ORIGINAL ARTICLES.

NEPHRECTOMY.

BY C. E. RUTH, M. D., of Keokuk, Iowa,

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I FIRST wish to report a post-mortem, which I have denominated Case 1, although no operation was ever performed on this patient.

CASE 1.—In 1895 I was called to see Mrs. McK., who gave a history of pain in the right lumbar region of eleven years' standing, but was able to be about and do some work until the last four months. She was greatly emaciated; skin was deeply bronzed, like one in the last stages of carcinoma; the liver seemed greatly enlarged and extending to the crest of the ilium; fever was constant; examination of the urine was negative. She urged operation, which was refused, owing to the fact that she seemed to have but a few days to live at the most. She lived about one month after coming into my hands. Post-mortem was made within a few hours after death, and an enormous pus sac, occupying the capsule of what was once the kidney, was found. This contained at least two quarts of pus and a stone weighing one thousand grains. The pus cavity extended up high behind the liver, which was displaced downward and forward. This woman, whose condition was never recognized during life, could have been relieved of her pain and her life spared for many years by timely surgical interference. This case has largely influenced my course in dealing with pyonephrosis from any cause.

The following three cases, treated within the last two and one-half years, may be of interest to some; hence the report. I am at a loss to know why nearly all of my cases of movable kidney, hydro- or pyonephrosis, involve the right kidney. Occlusion of the ureter explains the result of the urinalysis in the post-mortem case. All other organs were found healthy.

CASE 2.—Mrs. Louis Presser, American, aged thirty-one years, April, 1898, applied to me for treatment. Complained for the last three years of dull pain in the right lumbar region; found a tumor below the costal border on the right side, extending to the median line and below to the crest of the ilium, smooth and tender; immovable; passed up beneath costal border to near spinal column; urine loaded with pus; no bacilli could be found in the urine; fever of low grade constantly.

Diagnosis.—Pyonephrosis with tuberculosis as probable cause of the renal disorganization and ultimate mixed infection.

Treatment.—Through lumbar incision I opened and drained one and one-half quarts of pus and tubercular matter. Renal disorganization was

complete. Recovery was very tedious. December, 1898, she presented herself at my clinic and desired to have the renal remnant and capsule removed. She had gained twenty pounds, and was in good condition. Drainage annoyance and pain for the past month was considerable, and it was on that account that she desired operation. Owing to the great size of the sac and dense adhesions, its removal was effected with considerable difficulty. It extended far up behind the liver, inward against the spinal column and below to iliac crest. The incision was an extension of the old one in the usual oblique direction. The peritoneum was opened accidentally at one point for about one and a half inches, but was immediately closed with catgut, and caused no trouble. Owing to the great depth of the pedicle and the difficulty of reaching and securing it with ligature, it was caught with a long, angular pedicle forcep, which was left in place for twenty-four hours. Recovery was without incident, and she left the hospital in three weeks with considerable drainage from the cavity, which had not entirely closed. Eleven months later she again reported at my clinic, complaining of a slight discharge from a small persistent sinus. This was dilated, followed as far as possible, and thoroughly curetted and cleansed. It quickly closed and remained so, to the last report, one year later, when it was making no trouble. She was enjoying good health, as she had been all the time since the enucleation.

CASE 3.—Mrs. I. S. Buzzard; American; aged twenty years; mother of one child. Applied to me for treatment December 18, 1899. While pregnant two years before was found to be passing urine frequently, which was loaded with albumin and from which it has not since been free; reaction alkaline or neutral; fever in afternoon for the past year, followed by night-sweats for the past four months; highest temperature noticed $103\frac{1}{2}^{\circ}$; pulse, 116; enlargement of right kidney; large amount of pus found in urine.

Diagnosis.—Pyonephrosis.

Treatment.—Oblique lumbar incision, through which a pint of pus was evacuated from perinephritic abscess. She left the hospital in eleven days.

March 31, 1900, was called to see her at her home. She had gained fifteen pounds in weight and is much stronger, but has for the past six weeks been having an unusual amount of pain. Sinus, which has been kept open, was dilated and enlarged by incision, the kidney was opened and pelvis explored, but no calculus was found. The organ was much softened and enlarged. Cordine drain was introduced and constant drainage maintained for four months; she now gained rapidly in flesh and strength and presents a better appearance than for several years.

December 10, 1900. Since last September she has passed but little urine through the lumbar drain, but occasionally considerable pus has been passed, with occasional rise of temperature and some pain; the discharge of pus has not been constant; electric illumination of the bladder

shows no indication of irritation about the left ureter. Nephrectomy was done and necrotic kidney removed; neither clamp or ligature was required; patient's pulse at the completion of the operation was 160. Three weeks later she was up and feeling well; three months later she was well to all appearances.

CASE 4.—July 31, 1899; Eugene Tinsman, aged twenty-four years. For one and one-half years has had albumin in urine; microscope shows pus in large quantity and no bacilli; pain severe for four months and almost constant; tumor plainly felt in right lumbar region, extending in front to within two inches of the median line and below nearly to the crest of the ilium; very slight mobility and extreme sensitiveness of tumor, with constant pyrexia; temperature 100° to 103° ; pulse, 100 to 120.

Diagnosis.—Pyonephrosis, probably of tubercular origin.

Treatment.—Oblique lumbar incision with examination and drainage of renal pelvis; no stone was found; one and one-half pints of pus was evacuated. Improvement was rapid and he left the hospital in four weeks. Drainage was maintained constantly until January 11, 1901, when, as he was again having some fever and more lumbar pain than usual, he desired removal of the kidney remnant. Old incision was enlarged and enucleation done with great difficulty owing to the large size of the mass and extreme density of the adhesions, together with the narrowness of the space. Stump was ligated in three sections with heavy silk; liver was bared for four inches. His endurance was taxed to the utmost, but he slowly rallied and left the hospital in six weeks, having gained in strength very rapidly in the last three weeks; cavity was closing nicely. Three months after operation he reports gaining rapidly in flesh and strength and that he is free from pain. He has a small tubercular sinus in the perineum which received no attention at all owing to his precarious condition.

In all of these cases the kidney was so far disintegrated that the patients would have been better off without it for many months before the removal was done. They were all in so extremely critical condition from prolonged sepsis and suppuration that I did not feel justified in doing more than evacuate the pus, providing and maintaining drainage. Case 2 has been well long enough to prove the wisdom of the course followed in her case. The other two are as yet too recent to determine as to permanency, but are sufficient to justify the plan followed in each. All three are alive, comfortable and able to do considerable work. I am convinced that if I had done the radical operation in all I would have lost at least two and perhaps all three cases. Two or even three operations to reach our ideal and enable us to save our patients are greatly to be preferred to one ideal operation and a dead patient. In all such cases I am, of course, in favor of the radical operation at once, if the patient's strength will justify. I am not in favor of removing a pyonephrosed kidney, one-half of which may be able to functionate, because very material damage to an only kid-

ney means speedy death; whereas, the aid of a half kidney on the other side may tide the patient over an emergency. A tuberculous family history and exposure was obtained from Cases 2, 3 and 4. Case 3, however, did not show it in her appearance or in the condition of the purulent discharge.

THE EYES OF OUR SCHOOL-CHILDREN.¹

BY ELLET O. SISSON, M. D., of Keokuk, Iowa,

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THE school statistics of our Census Bureau show that, during the years 1889–1890, there were in the various schools and colleges of the United States more than fourteen millions of pupils; and, when we consider that the larger per cent. of these are growing children, and that the greater part of childhood is spent in the school-room, the subject of the vision of these pupils becomes an important one.

An examination by Harlan and Wood of the eyes of the pupils of the public schools of Baltimore, during the session of 1895 and 1896, showed that of the 53,065 examined, 43 per cent. had normal vision in each eye, while 17 per cent. fell below the prescribed standard. In the last session there were examined 39,241 children; 16 per cent. fell below the standard, while 52½ per cent. had normal vision in each eye. It will be observed that the plan discovers only children with defective sight. Between these and those with normal vision in both eyes there were left in the first year 40 per cent. and the last year 31½ per cent. of all examined. The work of other American observers in the public schools of the United States shows similar results, and I will not take up time in quoting them.

It may be asked: What is the nature of the damage done to the eye in school life? and why does it occur at this period?

Briefly: damage is in the direction of producing near-sightedness, and produced near-sightedness is a diseased condition. It is a source of constant danger, and not infrequently after it has ceased to advance, the eye remains weakened and liable to destructive disease. Elongation of the eyeball, as is well known, is the change leading to near-sightedness. The outer coat does not obtain its full power of resistance until about the twelfth year, or even later, and during the last six years of this time the eyes are being used for near work. Near work increases pressure within and upon the sides of the eye globe, and certain refraction errors, notably astigmatism, demand increase of this pressure to give the child its best vision. Thus the danger of elongation is increased.

¹ Presented at the Ninth Annual Meeting of the Tri-State Medical Society, April, 1901.

Careful, repeated studies of individual cases have demonstrated that, for these cases certainly, the tender, readily yielding sclera of youth had distended under the strain and the probable increase of tension produced by the prolonged turgescence of the intra-ocular tunics, thus bringing about the observed increase in the refraction. The extent of myopia amongst the pupils of our public schools has been shown by careful and systematic investigation.

Risley's examination of 1212 pupils between the ages of six and twenty-one years, of various schools in Philadelphia, conducted in 1881, showed that 13.7 per cent. were myopic. In 1882, Mettendorf and Derby, of New York, examined 896 pupils of the grammar grade, with the result that 13.5 per cent. were found to have myopia.

If, then, we come to regard increasing refraction in the human eye as a manifestation of disease, the figures in the school-room statistics acquire a vital significance when viewed from the standpoint of school hygiene.

In view of the results obtained by these investigations, we have impressed upon us the necessity for a systematic examination of the eyes when the child is brought for admission to the school. One of the first questions should be: "Have your eyes been tested?" If answered in the negative, such investigation should be urged upon the parents, or made at the time by the teacher or some person detailed for this duty and instructed in the proper methods of examination.

For this purpose professional training is not necessary. The requirements are so simple that any teacher should be able to determine whether the acuity of vision is normal or not. All that is essential for the purpose is, first, a chart of standard test letters and a few simple instructions as to its employment; second, a small card of clearly printed $4\frac{1}{2}$ point (diamond) type and a metre or foot-rule. The test letters should be placed in a good diffused light, preferably falling upon it from the side, and the pupil stationed at a measured distance of six metres or twenty feet. He should then be required to name the smallest letters which can be called correctly with each eye separately. The nearest point at which the diamond type can be read clearly should then be determined. On the back of the cards should be printed a table showing the normal near-point for an emmetropic eye at all ages from six to twenty years, together with simple instructions as to the manner of determining it. If the sharpness of vision should prove to be much below the normal, or if the near-point is found too remote for the age of the pupil, admission should be granted only after apprising the parents or guardian of the existing defect of vision and the consequent need of professional advice. Such inspection would at once eliminate all those pupils with considerable errors of refraction, with corneal opacities, or with serious pathological conditions of the fundus. If, at the beginning of the school life, these congenital anomalies of refraction could be carefully corrected by suitable glasses, we should hear much less complaint of the harmful influence of the schools upon the eye-sight of our children.

Among the reforms that suggest themselves is the necessity for a more elastic curriculum of study, which will allow the attendance of partially disabled children without demanding of them the urgent pursuit at the same time of all the branches of study required of the class to which they belong. It is possible that some system of certified proficiency in as many studies as the individual is able to master safely, might be adopted even in our public schools. The time of their school life might be lengthened out by a year or more.

Another evil that ought to be and could be easily corrected is the work required to be done at home by the pupil in the way of preparing his lessons. This is usually done after night and very often by poor light.

Again, there should be frequent breaks in the continuity of the work done in the school-room. Since the strain upon the eyes is greatest at near work, it should be so arranged that the blackboard and wall map exercises, oral instruction, lectures, etc., should frequently interrupt the studies which require close application in reading and writing, and that the school session should be broken by short recesses passed in the open air, or by gymnastic exercises, marching, etc. Another evil to be deplored is the system of term examinations in vogue in the schools. Sudden relapses of choroidal disease with an increase in refraction brought about in the eyes of patients after this spasmodic exertion in preparing for examinations have been observed frequently, and this, too, after the steady work of the term has been accomplished without harm. The lighting of school-rooms is a subject that, we are glad to be able to say, has received much attention from hygienists and architects within the last few years. The light should be admitted from the left side of the pupils, and the ratio of the window surface to floor surface should never fall below one to five, and this should be exceeded in many localities, on the north side of the buildings and on the ground floors.

The seating of school-children is of the greatest importance, as much harm can be produced by improperly constructed seats and desks, and much good can be accomplished by properly constructed ones. In connection with the seat and desk there are three points of importance to consider: first, the height of seat from the floor; second, the distance of desk from seat, and third, height of desk.

The following quotation from an article by Dr. Risley expresses clearly the means by which these relations can be correctly maintained: "The arrangement of seat and desk must be such that the child will find it easier to sit upright at his work than in any other position he can assume in the seat. To secure this the seat must be of such a height as to permit the soles of the feet to rest upon the floor. The measured distance will be the same as that from the sole to the inner bend of the knee. The seat must be as wide as the thigh is long, measured from the inner bend of the knee to the back, and should be slightly concave to prevent sliding forward, but should not be inclined either backward or forward—*i. e.*, it

should be level. The front edge of the seat should be placed from one to two and one-half inches under the inner edge of the desk. This is known as the minus distance."

This latter term applies to the horizontal distance between the front edge of the seat and the rear edge of the desk. Seat and desk may have three possible relations. The seat may extend under the desk, minus distance; the front edge of the seat may be in the same vertical line with the rear edge of the desk, nil distance; or there may be a space between the seat and edge of desk, plus distance. Nor is it a matter of indifference or convenience which of these relations is obtained. The plus distance is to be avoided. Dr. Risley thus describes its dangers: "To work at a desk so placed, the pupil is compelled to reach forward. To do this, he perches himself on the front of the seat, while the feet are carried backward under it. The trunk falls forward, and finds support upon the elbows, one or both of which rest upon the desk. If but one, the left is used for support, while the right is employed as in writing, the vertebral column is partially turned on its long axis, and the entire trunk held in a distorted position, which we may well believe is conducive to the production of spinal curvature in growing children. In this forward pose of the trunk the head is no longer supported by the spine, and must, therefore, be upheld by the muscles of the neck, which should be required only to balance the head. They soon tire, and the work then falls upon the muscles of the back, which in turn give up the task and the head falls forward toward the work, while the trunk sags forward and downward between the shoulders, which are upheld by the arms, the elbows being supported by the desk. The face is brought too near the page and the left eye nearer than the right. The normal relation between the plane of the face and the work is thus disturbed, which, together with the abnormal near-point, adds greatly to the strain upon accommodation and convergence."

Of no less importance than avoidance of this plus distance of the seat is the height of the desk. If too high, there is the same abnormal nearness of the face to the work, with consequent strain on accommodation and convergence; on the former, to enable the child to see the print; the latter, to keep the eyes fixed upon the work. At the same time the arm in writing is thrown too high, with consequent distortion of the back and unnatural position of the body.

In conclusion, let me say that the points brought out in this paper are not new, but are ones that have been discussed by hygienists and specialists in the various departments of medicine for years; but that does not lessen their importance, and that there is great room for improvement along the lines suggested, no one will dispute. Each year sees our educational system becoming a more potent factor in our civilization, and with the increasing demand for higher education in all departments, we must not lose sight of the importance of the necessity for physical perfection as well as mental.

THE PRACTICAL APPLICATION OF THE X-RAY IN FRACTURES AND DISLOCATIONS.

By J. RUDIS-JICINSKY, A. M., M. D., M. E., of Cedar Rapids, Iowa.

THE X-rays have become an accepted diagnostic agent in all fractures and dislocations. A work on surgery without full credit to the diagnostic advantages of the X-rays, especially in this branch, would not be up to date. To speak about their value in fractures and luxations, in honest and capable surgical hands, is not necessary any more. They are not only valuable in corroborating the status præsens discovered by the usual methods of diagnosis, but at times, by their aid, we can discover lesions not recognizable by ordinary methods of examination. It is now, in view of advancement in this diagnostic measure, within the power of every physician, especially in the country, to be his own consultant and frequently correct his own mistakes, which would not, and could not, perhaps, be recognized until too late. This being possible, it gives us, besides that, a correct record of our procedure during the whole case of the treatment, if we wish to, and may protect us in every case. Such a diagnosis every one of us should know, not only because it is absolutely reliable, but that there is a danger that improvements in specialization may limit our personal accomplishments in diagnosis, and we could not depend on ourselves but somebody else.

Very early in the history of the X-ray it was found that we have to deal only with the shadows, with all the limitations which the term implies. By repeating experiments, research, facts, experiences, better apparatus and better technique, we are now able to photograph not only the shadow of the bones, but the substance of the same, and do work that is much more successful.

There has been much written about the fallacies of the X-ray, tending to push aside this new method of diagnosis; but how about microscope, ophthalmoscope, or any other delicate instrument? You have to look until you see something; and in fact, to the unpracticed eye, the microscope or ophthalmoscope is much more liable to lead one astray than the very simple application of the X-ray. To practice medicine, we had to study; to manage an individual case of typhoid, we have to read; to operate in a difficult case, we have to look up our authorities, etc.; and to manage the new means of diagnosis, the X-ray, we have to study just as well.

It is very simple, indeed, to get hold of the handle or switch and produce the X-ray with the help of the coil or the static machine, but it is really very difficult to manage the same and to know what to do in some cases, when the fundamental laws and principles of the electrology and radiology are not understood. And let us state right here, that such and similar nonchalance was the main cause of misrepresentations and many

mistakes in the beginning of the X-ray phenomena, attributed falsely to the X-ray, instead of to the operator himself.

Know your technique, your apparatus, your Crooke's tube and the power of your X-ray; the distance of the tube from your object; the distance from the photographic plate, which must be as near as possible to the part examined, remembering that the shadows which are seen most beautifully correspond exactly with the radiation from the disk of the platinum in the tube; know and regulate the duration of exposure, and mark the angle at which the picture is taken. If you wish to make a correct diagnosis and produce an accurate skiagraph, you must never be satisfied with one picture of the case, but make it also your duty to produce different skiagraphs from

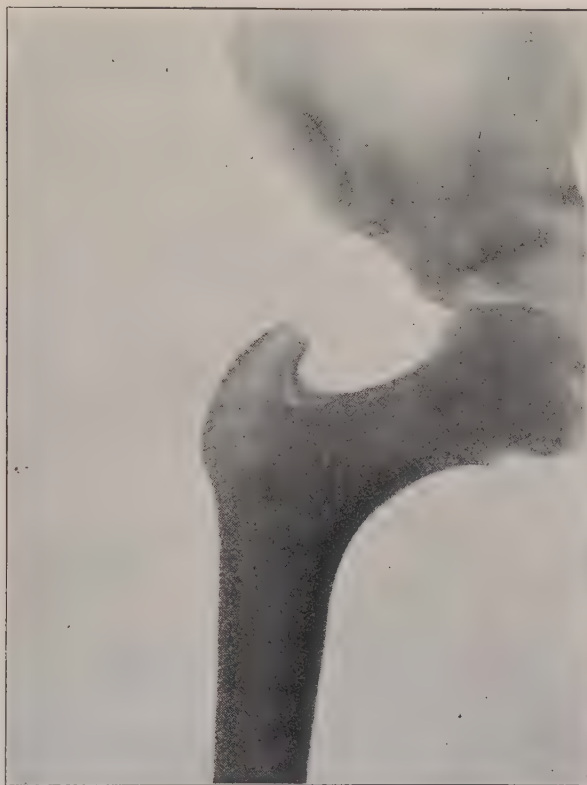


Gunshot Fracture. On examination, fracture of the orbit and Mauser bullet lodged under the left wing of the sphenoid. Skiagraph shows plainly the meningeal grooves, the internal structure of the bones of the head, and locates the bullet correctly, if we take into consideration that the sutures show plainly. They could serve us as the landmarks.

different points, comparing the same, of the injured part with the normal one. Our work must be rapid, exposures short, and the patient protected. To read correctly the lesson of an X-ray picture, know your individual case, your anatomy and pathology; keep the obliqueness of the X-rays in mind and make the skiagraphs as nearly life size as possible, to get sharply defined outlines, using a proper dividing screen for measurements and exactness of your negatives. Then you will make sometimes skiagraphs which really will be most wonderful, will secure you the best consultants, will protect you for the future and show you what to do in the proper way.

The bone relationships in joints, the various joint movements, dislocations in what direction, fissures, true, "green-stick" fractures, depres-

sions, separation of the splinter or apophysis, the direction and character of the line of the complete fracture, transverse, oblique, longitudinal, V or T shaped and comminuted, the seat of the fracture, as to the neck, head, shaft, separation of the epiphysis, or if extended into a joint, multiple, compound or gunshot fractures can all be studied in striking way with the help of the X-ray, and the different steps in bone development or repair observed. In regard the callus formation and functional ability, in many cases the X-ray tells us the truth and will teach us to do more honest



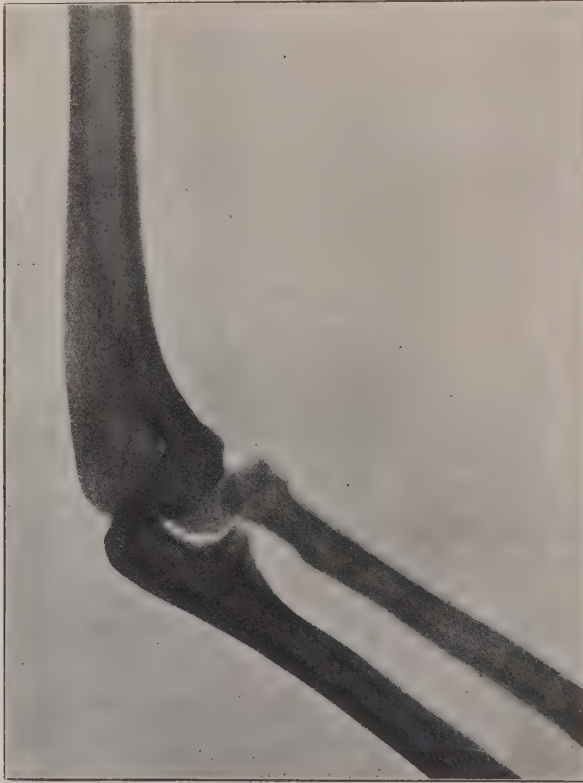
Dislocation of the Femur at the Hip-joint. The head forward and downward. Railroad injury. Diagnosed as fracture of the neck of the femur. The structure of the bone is normal. The marrow of the femur may be plainly observed. Shortening of the limb, two and a half inches.

and successful surgery. When the proper conditions and positions are known, the X-ray cannot mislead; its revelations are correct and infallible.

To prove this assertion I have selected skiagraphs of my own, the results of actual cases and the diagnosis made. The exposure in all my cases was very short—seconds instead of minutes. The difference between the skiagraphs taken years ago and now is most marked in the case of the hip-joint, diagnosed five years ago as coxalgia, and showing, as you see very plainly, in substance and internal structure, healthy bone tissue on our

skiagraph and a simple dislocation of the head of the femur, never reduced. Without the X-ray we would hardly make the diagnosis now.

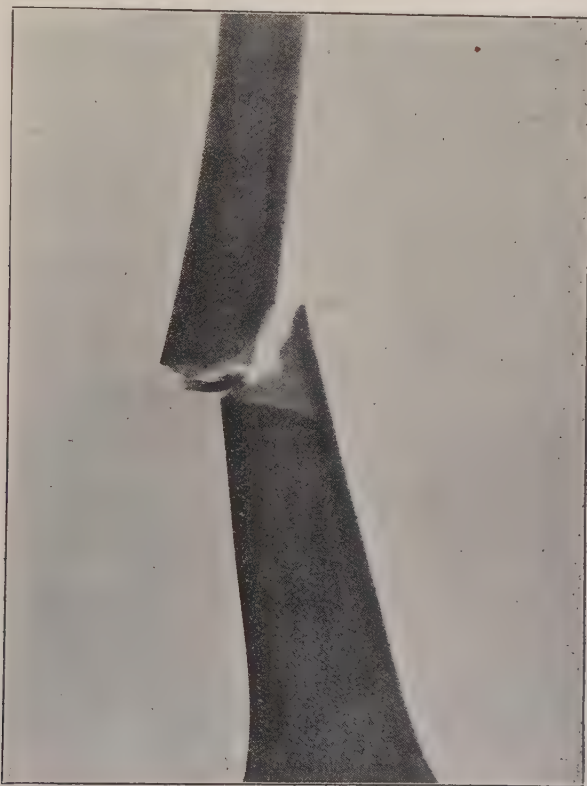
There is no question about it, that you may deceive the sense of touch, but not so easily the eye, supported by some measure which is absolutely unerring in its diagnosis. It is said "that in few cases of fractures the X-ray will give no information which we are unable to obtain by any other method, but in a large majority of the cases of fractures we are able, as said, to determine by physical examination the exact condition of affairs just as readily as we are able by means of the X-rays."



Dislocation of the Radius and Ulna at the Elbow-joint, Complete. Reduced with the help of the fluoroscope. Depressed under same conditions, and final results excellent. No loss of function. In this, as in other cases, tungstate of calcium screen used to get the internal structure of the bones.

Every expert and surgeon will be very much surprised at such a statement, knowing that fracture of the styloid, for instance, occurs in four out of five cases examined for Colles' fracture. This condition of affairs never could be made out by cruder methods. In children you cannot recognize the normal or abnormal membral epiphyses, the growth of the bones and their exact relationships, if they are altered by disease or trauma, but the X-ray findings in these cases are marvelous and correct. If there is a fissure fracture, even with close approximation, the X-ray will always show

the fissure; but the exact condition might not be made out just as readily by physical examination, which gives pain to the patient, or discomfort at least. With the help of the X-ray a local cranial wound may be much better examined than in the usual way. If fracture exists, whether it is simple, compound, or complicated with fissuration or depression, is determined with the fluoroscope in five to ten seconds, or skiagraph may be taken, without any aggravation of pain or any danger of complication to the patient. In impacted fractures the diagnosis is impossible in any other



Fracture of the Fémur Between the Middle and Lower Third. Impacted. Shadows, which are both shadow and substance, giving internal structure of the bones with a wonderful depth and perspective. Case skiagraphed immediately after the injury, fragments set under fluoroscopic examination and the patient is now well. There is no shortening.

way without great damage. The X-ray may also point out when reduction and coaptation can be effected, or when operation should be done.

But the main thing! With the help of the X-ray we will make correct diagnosis through the preliminary dressing, take the same off when the diagnosis is made and reduce the dislocation, apply proper dressing and observe constantly during the whole procedure our work until complete. In a case of fracture, we put the fragment together and apply the splints, and through them carefully observe the result of our work; may

change the position of the fragments, if necessary, and apply our final dressing when the fragments are fixed. The dressing need not be changed until necessary, and we may further observe through the dressing the growth of the callus, how the union of the bones is taking place or not, or photograph through a plaster of Paris overcase, after an attempt at reduction, and see if proper approximation of the fragments has been accomplished, and find sometimes, perhaps, that the union did not and could not take place. This, under no circumstances, could be made out by other means of diagnosis. Or, if we have a case of suspected fracture or dislocation, or both, where the swelling will not allow any digital examination on account of the pain or the inflammation which masks the true condition, the simple application of the X-ray at once reveals the status præsens, without any discomfort to the patient and great satisfaction to the surgeon.

"It has been the observation of every railroad surgeon that it is quite impossible sometimes to form a correct estimate of the amount of destruction suffered by the tissues and bone, especially in a railroad crush, when the patient is laboring under a great shock or pain." Lord! But with the help of the X-ray we may see every particle of the crushed bone through the preliminary dressing and determine if amputation is necessary. Skiagraphs in such cases, taken soon as possible after the accident, and again after first dressing, and again when the patient is discharged from the care of the surgeon, leaves the record complete. A skiagraph of a stump may sometimes be also very interesting and useful. Such a method of correct diagnosis and the whole procedure in each individual case would be the only just solution of contention between employer and employed. And all this is done without general anæsthesia. How often is the operation really of secondary importance as compared with the dangers of anæsthesia in such and similar cases? With the facts before each party to the case, clear and unmistakable to both, is it not reasonable to think that litigation would diminish and enmity vanish?

The value of the X-ray in fractures and dislocations, together with all the necessary accessories, cannot be disputed any more. If you wish, the negative will give you the internal structures of the bones with a wonderful depth and perspective, and you will have the picture of the substance, not only the shadow, of which still so many surgeons are afraid. In such cases I use the tungstate of calcium screen over the photographic plate, and get shadows which are both shadow and substance, which, if we do understand them and intelligently interpret them, will always bring us to correct diagnosis. But, if we choose, we may try our sense of finger-touch and determine the condition of affairs the old way, or be protected and be sure by means of the new way.

OUR DAILY BREAD.

BY GEORGE HOMAN, M. D., of St. Louis, Mo.

A COMPREHENSIVE definition of bread is worded as follows: An article of food made of the flour or meal of grain, mixed with water or milk and salt, to which yeast, baking powder or the like is commonly added to produce fermentation and rising, lightness or sponginess, the mixture being kneaded and baked in loaves or as biscuits, rolls, etc.¹

It is stated that the most primitive way of bread-making was to soak the grain in water, press it, and then subject it to heat. This was improved upon by pounding or braying the grain in a mortar or between two stones before wetting and heating, and some etymologists would derive the word bread from this braying operation.

The development and refinement of this process may be said to constitute one of the chief marks of advancing civilization, and in no particular has the cooking of food received more attention than in the preparation of bread. The need of this form of aliment is so pronounced in peoples who have emerged from the savage state that the name has stood since the earliest records as a synonym for food in general, the adherents of the Christian religion, for example, being enjoined to pray that they may be given, day by day, their daily bread; and as such it typifies the fundamentals of animal life, meeting some of the primary physiological demands of the body, although not in itself a complete food.

In all the more advanced nations the flour of wheat is used in the making of bread, and the proper milling of the grain is necessary for the twofold purpose of reducing it to a powder and of excluding the coarser and indigestible parts.

While the richness in quality of the grain in the world's wheat-growing regions increases toward the equator, still after the evaporation of the contained water the mean composition of an average quality of wheat may be stated in percentages as follows:

	Per cent.
Gluten and albumen.....	13.5
Starch.....	54.5
Gum, sugar, oil and fiber.....	30.
Saline matters.....	2.

Taking the weight of one hundred kernels of wheat as 3.87 grams, the Chief of the Division of Chemistry, Department of Agriculture, has recently stated the constituents of that quantity of grain in the following form:

	Per cent.
Moisture.....	10.62
Proteids.....	12.23
Ether extract.....	1.77
Crude fiber.....	2.36
Ash.....	1.82
Starch and sugars.....	71.20

As mentioned in the definition of bread given above, the three absolute requisites for the making of good bread are (1) flour or meal, (2) yeast or leaven, and (3) water containing salt; the first furnishing the important food constituents, proteids, starches and ash; the second by gaseous evolution distending or raising the dough, and thus enabling the applied heat to act most efficiently; while the water and salt are necessary to form the dough-mass and impart savor to the finished product.

The mere assembling and mixing of these materials, even though of the best quality, does not assure a wholesome article of bread; for, besides the requisite skill for preparing the dough, its proper baking is an equally important factor, and is perhaps the least well understood of the two.

The means or agents employed to leaven the dough are of prime importance, and their relation to the desired end should be clearly comprehended.

Yeast or leaven is a ferment known from earliest times, and is added to give a start to the fermentative process through the action of its enzymes on the gluten, starch and sugar of the flour, thereby supplying carbon dioxide, which imparts a spongy texture to the bread.

Yeast consists of microscopic vegetable organisms which, when placed in a suitable medium, grow rapidly, producing alcohol and carbonic acid gas. The evolved gas, in attempting to rise, becomes entangled in the meshes of the dough, distending it and making it light. After the dough has risen sufficiently it is placed in a hot oven to bake. The heat destroys the yeast plant, and thus prevents further fermentation. If the growth of the yeast be allowed to continue for too long a time, acetic, lactic, and butyric acids are formed, and such dough makes "sour bread."²

The minimum temperature of an oven for bread-baking is placed at 320° F., and the maximum may reach 570° F. The action of the heat dissipates much of the water from the dough, distends the air spaces more fully, steams or boils the starch and gluten in the dough, develops some gum from the starch, and when yeast has been used, as before mentioned, destroys the yeast plant.

However high the temperature of the oven may rise, that of the interior of the loaf cannot be much, if any, above 212° F.; so that essentially the cooking of all but the crust of the loaf is the effect of the action of moist rather than dry heat, and the baking process must be continued for such length of time as may be required to accomplish the transformation of the raw starch, etc., into a form fully acceptable to the human digestive functions; and this implies a period depending, of course, upon the size of the loaf, and the temperature of the oven, the formation of dextrine being a very important part of the process.

The following is a correct description of the general qualities of good bread: Good bread has a thick, fragile crust, which is not burnt, and which forms from twenty to thirty per cent. of the weight of the loaf. The crumb is white and filled with cavities, the partitions between which

are easily broken down. These cavities should be distributed through every part of the crumb; otherwise the bread is sodden and heavy, and decomposes quickly. The bread should be of a pleasant odor and taste.³

Besides the use of yeast for raising bread, other substances are employed which by chemical action set free carbon dioxide and thus distend the mass; and their convenience of use and rapidity of action have contributed largely to replace yeast for this purpose in domestic use at the present time in the preparation of the more quickly extemporized forms of bread.

The employment of saleratus with buttermilk, or other acidulous milk, was the forerunner of the baking powder, which now plays such an important part in the commercial world, as well as in the economy of the domestic *menage*. They were first used in this country, perhaps, forty years ago, and the practical development of the idea involved in their preparation was due to American enterprise. While there are several different substances and combinations used by baking powder manufacturers, the object sought by each is identical: that is, by the reaction of bicarbonate of soda and an acid salt mixed in the flour to generate carbonic acid gas by the addition of water and thus quickly inflate the mass, this process being aided by the heat of the oven.

Domestic experience had gradually developed the buttermilk-saleratus combination for raising biscuits, rolls, etc., but the difficulty always confronting the cook was to correctly proportion the two ingredients, as the weak lactic acid of the milk did not always neutralize the amount of alkali presented, and the result was a product with an interior of a saffron hue, mottled with dark spots, and of a more or less soapy, alkaline or bitter taste.

Curiously enough, the confirmed digestive derangements often attending the eating of such forms of bread were attributed to the fact that they were consumed while hot, and even to this day some physicians may be found who inveigh against the use of hot rolls or bread, as if the mere temperature was the cause of offending rather than the faulty making or imperfect baking—these inducing in the partaker fermentation, flatulence, gastric distress, and other unpleasant symptoms. A compacted bolus of such bread when swallowed presents to the digestive power of the stomach a serious task, as it can be acted on but slowly and disintegrated with difficulty, thus giving rise to pyrosis, eructations, and other manifestations of laborious and imperfect digestion; and if the baking alone be at fault, this holds true of bread made with any kind of leavening whatever.

It was with the object of furnishing an agent that could be kept on hand ready for immediate domestic use that the baking powder industry came into existence, and that a popular want has been met would appear to be proved by the magnitude of this branch of trade at the present time. Therefore, it becomes necessary to consider the influence of these products in the preparation of an article of food so important as bread, and

to inquire into their possible or actual ill-effects on the health of those who use bread into the making of which this form of leavening enters.

As already indicated, the only object sought in using leavening agents is the inflation of the dough-mass; and this end is attained with (1) yeast as a result of a vital process; (2) with certain substances as a result of their mutual chemical action; and (3) it may be reached by mixing the flour with water charged with carbonic acid gas, or by inflation of the dough by some simple mechanical agent, as a pair of bellows, for example—the means to be adopted in the average kitchen depending on facility of use, relative inexpensiveness, efficiency of action, and satisfactoriness of result in appearance, palatability, wholesomeness, etc. In the ordinary domestic *menage*, baking powders appear to offer these advantages in a superior degree, and therefore the substances which enter into their composition and the method of their manufacture claim public as well as professional attention, in view of the vast development of the business within the last twenty years.

There are three principal combinations of chemical substances used in the manufacture of baking powders, these being known to the trade as straight alum powders, phosphate alum powders, and cream of tartar powders; and the average composition of these several products may be stated with approximate accuracy, omitting fractions, as follows:

STRAIGHT ALUM POWDERS.

Soda-alum	20 per cent.
Soda bicarbonate	20 "
Corn starch	60 "

PHOSPHATE ALUM POWDERS.

Calcium phosphate	18 per cent.
Soda-alum	18 "
Soda bicarbonate	26 "
Magnesia carbonate	1 "
Corn starch	36 "

A small percentage of tartaric acid is also added to this formula.

CREAM OF TARTAR POWDERS.

Cream of tartar	55 per cent.
Soda bicarbonate	25 "
Corn starch	20 "

It may be explained here that in all of these formulas the starch is added simply for the purpose of separating the active ingredients, thus insuring the good keeping quality of the powders, and favoring their more equable reaction when used. In trade language it is termed a "filler."

In the last two formulas a small percentage of albumen is added to increase the glutinous quality of the dough, and thus favor the action of the liberated gas.

It being borne in mind that the sole purpose of these several combinations is the lightening of dough by means of the freshly evolved carbon

dioxide, and as it is not charged that this gas is injurious to health when employed in the preparation of food, it remains to be seen whether there are any by-products or secondary combinations against which such a charge may fairly be lodged.

In the first two formulas alum holds a leading place, the variety stated to be preferred and used for this purpose being soda-alum, as distinguished from the other kinds, known as ammonia-alum and potassa-alum. The alum used in these two combinations is *alumen exsiccatum*, or alum from which the water of crystallization has been driven by heat, thus losing nearly half of its weight and appearing as an opaque white powder, somewhat resistant to the action of cold water.

The obvious aim of the manufacturer, in order to secure a satisfactory product, must be to so proportion the amount of alum and bicarbonate of soda that they will both disappear as the result of the reaction which takes place when used in bread-making; for upon success in this respect must depend to a very considerable extent his ability to please his customers—in short, to do a successful business.

The combining proportions of pure soda-alum and pure soda bicarbonate are as forty-eight to fifty, and no residue will be left; but as found commercially, these substances usually contain some impurities, and this fact must always be taken into consideration.

Soda-alum being a double sulphate of sodium and aluminum, the evident secondary combinations possible in the case of the first and second formulas, failing a correct proportioning of the constituents, would be sulphate of soda (Glauber salts) and aluminum hydroxide, the acid element for the production of carbon dioxide being furnished by the aluminum sulphate. But in the case of the third formula the reaction of the acid and alkali constituents would secondarily produce sodium potassium tartrate (Rochelle salts); and in both instances, if these combinations were present in any quantity in the bread, the well-known bitter taste of these two familiar salts would give sufficient warning to the consumer—and as a matter of fact, such flavoring was not uncommonly met with in biscuits and rolls made with the *saleratus*-buttermilk combination; indeed, it is sometimes encountered now in forms of bread made with any kind of baking powder. While such a taste is, of course, foreign to good bread, and must be pronounced most objectionable, still the substances responsible for it could hardly be considered harmful, as at most they would be unlikely to have more than a slight aperient effect in those consuming such bread.

The combination known as aluminum hydroxide or hydrate or terhydrate, possible when alum baking powders are used, is described as a light amorphous powder, devoid of odor and taste, insoluble in water or in alcohol, but soluble in solutions of the acids and the alkalies. It is a mild astringent and desiccant, and, when freshly precipitated, clarifies the liquid in which it is contained by withdrawing from it dissolved matter, both organic and inorganic.⁴

* Litigation, in the course of which the chemistry of baking powders was exhaustively gone into by scientific experts, with especial reference to the question of the effects of alum on the human system, was begun in St. Louis late in 1899 as an outcome of legislation enacted by the General Assembly of Missouri the same year, which prohibited "any person or corporation doing business in this State to manufacture, sell or offer to sell any article, compound or preparation for the purpose of being used or which is intended to be used in the preparation of food, in which article, compound or preparation there is any arsenic, calomel, bismuth, ammonia or alum," the minimum penalty being fixed at one hundred dollars.

While the influences which procured this legislation were not publicly evident at the time of its enactment, the interests controlling and owning the cream of tartar baking powder business appeared conspicuously in the prosecution of the first case instituted under the law, and they spared no pains or expense in order to secure a conviction, the reputed inroads on their business by their competitors presumably prompting this course, as the market price of the alum powders is about one-third that of the cream of tartar powders.

The style of the case was State of Missouri, plaintiff, vs. Whitney Layton, defendant; and the fact that the defendant was engaged in the manufacture and sale of alum baking powders was not denied, the defense resting on the asserted unconstitutionality of the law and the harmlessness of alum baking powders. In the course of the trial a great amount of expert and *ex parte* testimony was heard—chemical, medical, physiological, etc.—many of the most eminent chemists in this country being present, the efforts of the prosecution being vigorously exerted to show either that free alum was present in the bread or that harmful aluminum compounds were formed when alum baking powders were used, the substance called aluminum hydroxide being especially pointed out as of that character.

Without undertaking to review the great body of testimony offered and bearing on these points, it will be sufficient to quote from the decision of the trial court in giving judgment in the case. After commenting on the contention of the prosecution that hydroxide of aluminum was deleterious and the testimony offered by eminent experts as to its theoretical effects, attention was called to the fact that but one witness presented any report of experiments (which were performed upon himself), and these showed that single doses of not less than twenty grains were required to produce any appreciable effect. The testimony of all other experts who testified for the prosecution rested purely on a theoretical basis, and though it appeared that hydroxide of aluminum was a substance easily accessible and which could have been made the subject of practical experiments by the various eminent scientists, yet they were without a single practical test except the one mentioned, and were without a basis of actual determination upon which to found their theory. The court continued:

“Upon cross-examination the experts testifying for the prosecution admitted that in all their reading and information they possessed on the subject they had never themselves come in contact with, nor could they obtain any information or any knowledge of, any recorded instances in which functional disorders or disease or impairment of the digestion and general health had resulted to any human being from the use of alum baking powders as an ingredient in the preparation of food. In the mind of the court this fact, considering the enormous proportions to which the alum baking powder industry has grown in this country, and the length of time in which such baking powders have been in use, stands as a stone wall against the deductions of the most eminent scientists who presented their theories on the part of the prosecution. I am unable to find in the evidence presented in this case any just ground for a ruling that alum baking powders, of themselves, when used in the preparation of food, are in any way less wholesome than any other variety of baking powders.”

There can be no doubt of the fact that a strong public prejudice exists against the use of alum in bread-making, but this prejudice originated in times when breadstuffs were much dearer than now, and when alum was deliberately employed for the purpose of whitening the loaf, thereby enabling an inferior flour to be used, as well as to increase its weight in contained moisture, thus perpetrating a double commercial fraud which very properly was the object of restrictive legislation. A dietary cheat also attended this misuse, inasmuch as the phosphates of the flour were rendered less soluble, if not insoluble, in the stomach.

The fundamental distinction between this fraudulent use of alum and the purpose of its presence in baking powders to-day will be obvious from what has already been said; but that the justly grounded prejudice arising in other days has been shrewdly taken advantage of by the cream of tar-tar powder people to discredit the product of their business rivals cannot be doubted, and in the legislation obtained in furtherance of their ends no small degree of craftiness was displayed in putting arsenic as the leader and alum as the wheeler in the tandem driving of alleged statutory poisons.

Ancient history tells that a certain king was wroth against two of his officers, the chief of the butlers and the chief of the bakers, and threw them both into prison, where they lay for three days, after which time the king restored the butler to his honors, but he hanged the chief baker. The counts in the indictment against this offender are not given in the narrative, and while commentators may differ, it must be evident to medical men, who may read between the lines, that incompetency or negligence in his work must have been the crime which outraged the stomach and roused the dyspeptic wrath of his master; and it is not too late even now to pay a deserved tribute to the worth of one who was no mean man nor inconsiderable ruler, for his action clearly showed that he possessed the quality of penetrative sagacity to discover the cause of the mischief, and the courage to fit the penalty to the crime. Should we ever happen upon the mummy

of this Pharaoh, let us not withhold a tear to his memory and indulge the hope that emulators of the example set by this kingly soul may arise even in these degenerate days. For who of us, when confronted at table with sour, leathery, sodden or tasteless travesties on bread, has not hanged the baker—in our mind?—but we have not dared to go any further than that.

As already pointed out, even if all the elements of bread be of the best quality, and the mixing also be without fault, still if the baking be not equally perfect as to stage of leavening and time of exposure, failure must ensue. Doubtless much of the gastric distress and fermentation, with acid eructations, heartburn, etc., in persons of weak digestion, may be traced to the eating of breads not baked sufficiently to kill the *saccharomyces* where yeast leaven has been used; and a long train of evils may with equal truth be ascribed to the unchanged starches consumed in forms of bread where heat at a proper temperature has not been permitted to have its full ripening effect upon the loaf.

The custom, perhaps, in the average kitchen is to hurry the pans into the oven and whisk them out almost as soon as some singeing or scorching is apparent, the usual fault being a too high temperature with insufficient time of exposure for penetration of the heat throughout the interior, which is absolutely necessary to secure transformation of the starch with the formation of dextrine, on which the savor and aroma of bread depends and which adds so greatly to its palatability and digestibility. In fact, true panification is impossible otherwise.

It is, therefore, incumbent upon those who denounce alum baking powders as being hurtful, to point out clinically recognizable disease caused by such powders, and at the same time to be careful not to confound therewith forms of gastric ailment which existed long before such powders were known.

A recent writer⁵ has directed attention to several points in connection with bread and bread-making that are of interest and importance. As to the extent of this business, he says that during the twelve months ending June 30, 1899, 268,868,281 bushels of wheat were used in the United States for bread-making, this amount equaling 16,132,096,860 pounds. The waste in milling wheat (bran, etc.,) is replaced in bread by water, so that practically a pound of bread equals a pound of wheat. The actual cost of this bread, placed upon the table, not to speak of the profits of the baker, is about three cents per pound; making the total value of the bread consumed in the period of twelve months in the United States, \$483,962,905.80.

Now, this vast sum of money ought to command a better article of bread than that commonly offered to consumers, and Prof. Wiley calls attention to the Schweitzer system, as he observed its operation in France. By this system flour is used from freshly ground wheat milled in a way to cause it to be more than doubly rich in phosphates and nuclein, which are largely destroyed by the roller process of grinding, and the fact of this

vital difference between the two flours has been demonstrated by means of actinographs.

Flour is subject to oxidization by exposure to air, and thus suffers impairment in its nutritive value, this being evidenced in part by the loss of its golden tint, which is one of the marks of a good article of flour.

The nitrogenous principles of wheat are composed chiefly of glutenin and gliadin, which, with water, form the gluten or tenacious element of the dough. In the Schweitzer flour, which is of a marked golden tint and granular, these principles are preserved, and the bread, which is also yellowish in color, is so palatable, nutritious and so aromatic that no other kind is desired. The writer above mentioned says: "In view of the enormous economic importance of the bread industry, it is not unreasonable to desire to see the quality of our bread improved. It is not at all an exaggeration to say that scarcely twenty-five per cent. of the enormous quantity of bread mentioned above is properly prepared or properly baked. The nutritive properties of the other seventy-five per cent. are diminished, its palatability decreased and its value lessened by improper panification, not to speak of the dyspepsia and other digestive disorders attending the use of poor bread. In the interest of health, economy and good living a reform in our bread-making processes is urgently demanded."

He adds that the domestic baking of bread is to be deplored; that bread badly made has not a leg on which to stand, and that an earnest effort should be made to relegate domestic bread-making to the past, and to substitute in every community bakeries under competent control, offering the best bread at the lowest prices.

From what has gone before, it may be not unfair to conclude that bread-mixing and bread-baking have not in this country, as yet, been generally perfected; that much of the nutritive value of flour is dissipated and lost in bread as ordinarily presented; that while the leavening of bread is an important part of its wholesome production, the particular agent to be selected for this purpose—whether of vital, chemical or mechanical nature—must be largely discretionary with the baker; that serious dyspeptic consequences may attend the use of yeast-raised bread, as well as that made with any other kind of leavening; that the efficiency of baking powders, as respects the purpose for which they are intended, is unquestioned, while it has not been shown by medical experience or expert testimony that more harmful results follow from the use of the alum powders than from other forms of baking powders; that a great conservation of economic and nutritive values seems possible from a better understanding of the art of milling grain, the care and treatment of flour thus produced, and the proper preparation and baking of bread from such flours, as evidenced by foreign experiment and extended experience.

[Published synchronically with "Courier of Medicine."]

LITERATURE.

¹ Standard Dictionary.

² Vaughan—Lomb Prize Essays, Am. Public Health Association.

³ "Healthy Foods"—Am. Public Health Association.

⁴ Encyclopedic Medical Dictionary.

⁵ H. W. Wiley—*Forum*, November, 1900.

NOTE.—The following description of the Schweitzer method of milling wheat and the production of bread is taken from a consular report to the United States government, published January 29, 1900. This report says that the flour is ground out in quantities sufficient to meet the daily needs of the bakery, and that the wheat when received is carried by an elevator to the top of the mill, and turned into the different cleaning and separating machines. The report continues:

"After all foreign substances have been removed and the grains of wheat have undergone a thorough brushing and washing, they are clean and shiny; but the grooves of the wheat sometimes retain a little dust. This is completely eliminated by a Schweitzer appliance, which, seizing each grain lengthwise, splits it exactly in the groove.

"The wheat thus cleansed passes into the mill, composed of flat, circular steel grinders, grooved in such a manner that they accomplish the decortication of the kernel and its granulation into meal at the same time. These grinders are movable, but do not touch; so that, instead of crushing the wheat and producing a flour in which the starch only is retained, the outer and harder portion of the wheat, containing gluten and other nutritive properties, is retained in the flour. The bran alone is expelled.

"Attached to the mill are the works for kneading the meal, water and yeast into bread. All this is done mechanically, the works being separated into three stories. Special yeast is prepared in the upper story in rooms heated in winter and cooled in summer. The yeast, flour, and the salted and filtered water are carried down by machinery into kneaders in the form of half cylindrical tubes, rotating on two pivots placed in the axis of the kneading-troughs, so that the tubes may be placed at a lower or higher angle, in order to accelerate or retard the kneading.

"One person can attend to two Schweitzer kneaders, regulating the distribution of the dough; and thus the kneading of 2000 kilograms (4409 pounds) of dough per hour is accomplished.

"The steel arms of the mixing and kneading machinery, some of which are stationary and others mobile, stretch and work the dough much better than hand power.

"The flour, salted water and yeast automatically enter one end of the tub, and dough in an endless skein of pale yellow issues from the opposite end. This dough finally falls on tables on the ground floor, where it is weighed and made into bread of every shape and dimension. Small wagons are charged with the shapes, which then go to the raising-room. Each floor has a fermenting-room, kept at an even temperature.

"The dough, after raising, is carried by wagons into the baking-room, where it is placed in Schweitzer ovens heated by gas from retorts arranged in such a manner that the gas does not enter the oven, and the heat is so regulated that the baking operation goes on automatically.

"In connection with this model establishment is a laboratory for the chemical examination of the samples of wheat submitted for purchase. These are, upon their arrival, ground and passed through a sieve by a small hand bolting mill, * * * which determines immediately the nutritive volume of the grain in gluten and nitrogenous matter."

This report also states that there are mills, ovens and kneaders of various dimensions, that may be worked by machinery or hand power. The latter system enables the farmer to grind his own wheat and make his bread from an unadulterated and wholesome product, and mentions that family bread produced by this system is retailed in France at the rate of about two cents per pound, which is nearly one cent less than the usual price.

The recent meeting of the Tri-State Medical Society at Keokuk was a most successful one. The attendance was large and the meetings were well attended. A feature of the meeting was the passing of resolutions concerning the passage of laws governing marriage. The legislatures of the States of Illinois, Missouri and Iowa will be petitioned to pass laws forbidding the marriage of individuals presenting mental or physical degeneration. A determined effort will be made by the individual members of the society to secure the passage and enforcement of these laws. Dr. Bayard Holmes delivered an address on "The Obligations Between the Medical Profession and the People." The doctor tersely mentioned the prevalence of "grafter doctors" nowadays, and the efforts that should be made to exterminate them. In short, the meeting was decidedly successful, and the different members returned to their homes and practices feeling that their time had been well spent in attendance on the meeting. The meeting-place for the coming year will be Chicago, and the time of meeting, April.

The title is enclosed in a decorative, cloud-like frame. On the left side of the frame, there is a small illustration of scientific instruments, including a retort on a stand, a test tube, and a balance scale.

SCIENTIFIC MISCELLANY

The Problem of Sex.—A few years since, Dr. Schenk, professor of embryology in the University of Vienna, published a book which professed to show how the sex of a child might be determined prior to its birth. Notwithstanding abundant evidence that a highly albuminous diet tends, in the lower animals, towards female offspring, Dr. Schenk was bold enough to assert that the opposite was the case with man. So little support did he receive that the writer has been unable to find out the names of any of his followers. His doctrines were given to the world in a way which was considered objectionable by the faculty of the Vienna University, and the professor of embryology tendered his resignation. Being free to adopt any course he might think proper, Dr. Schenk has now imitated the patent medicine proprietors. He has published a "Compendium for Determining the Sex of an Unborn Child"—a work obviously intended for the laity rather than for the medical profession. The author attempts to show that the usual sex distribution—106 males to 100 females—is merely the result of normal assimilation of food by women. Famine, war and epidemics, which have an important influence on assimilation, cause, he says, decided changes in the proportion of male and female births. This is undoubtedly true, for, during times of famine in Ireland, an excess of male births has usually occurred as a result of a potato diet of limited quantity. But Dr. Schenk does not admit that a carbohydrate diet is favorable for male births, and he advocates the use of highly albuminous food for four months of pregnancy, if *male* offspring is desired. For ten consecutive days all carbohydrates are forbidden, and the liquids are reduced to three glasses of water a day, "with a little white wine!" Fear of a uric acid "storm," if nothing worse, does not seem to worry Dr. Schenk, and he assures his readers that his methods have been successful in twenty-one cases, in addition to fifteen referred to in his first book. Any woman, he believes, can carry out his ideas with the aid of the family physician. The male parent has no influence upon the sex of the child, according to Dr. Schenk, but he gives no clue to any experiments which have proved this hypothesis. For the present, the scientific world will

hesitate to endorse the ex-professor's views. The problem of sex is extremely obscure, and the investigation of the question by competent biologists has hardly been commenced.

The Brain of Man Compared with That of the Apes.—It is now recognized, of course, that man and the anthropoid apes are derived from a common ancestor; but the nerve-center which controls man's faculty of articulate speech does not exist in the apes, and, as a result, they cannot possess a power of speech identical with ours. Their intellects will, therefore, remain imperfectly developed. The defective anterior lobes in the brain of an ape are due to the small capacity of the animal's skull, caused by its ossification or consolidation during the first year of life into a rigid closed case, within which the brain cannot expand. An ape's brain, on this account, always remains an infantile brain. In man, however, the forepart of the skull does not consolidate until many years after infancy has passed, and so the anterior lobes of his brain, including the nerve area controlling speech, can continue to develop until he is almost twenty years old. But this cannot always have been the case, for the Neanderthal skull and the skull (found in Java) of the so-called *Pithecanthropus erectus* seem to be on the border-line between man and an ape-like ancestor, suggesting the idea that the expanding skull has been a congenital variation developed by the process of natural selection.

Although craniology has received a great deal of attention since Gall and Spurzheim made out their town-lot-like maps of a man's character; and although the motor-centers of the brain are now well known, the comparative anatomy of the brains of the various anthropoid apes and man has not yet appeared in print outside the technical books.

Referring to Gall and Spurzheim: how strange it is that many fairly educated persons still believe that an individual's character can be read by an examination of his head!

Alcoholism and Depopulation.—The population of France is decreasing, and alcoholism prevails to quite a serious extent. Is there any relation between these two facts? Such authorities as Pinard, Debove, Legrain and Jacquel say that but for alcohol the population would be on the increase. Upon the other hand, Mr. Ovize, of Lyons, claims that alcoholism, although a very ancient habit, has never prevented the population of the world from increasing. Alcoholic excess, he says, has existed from time immemorial among the Hindus and Persians. The laws of Mann and Lycurgus prove the abuse of alcohol in their day; but, while alcohol was regarded as injurious to the individual, it was not considered injurious to the health of his descendants.

In spite of this, there are a number of facts which Mr. Ovize cannot deny. The first is that certain European life insurance companies, which insure total abstainers at a lower rate than moderate drinkers, are able to

show by statistics that the abstainers live longer than the "moderates." (This may be unpleasant information for some of us, but it is true.) Secondly, the birth-rate is at its minimum in Normandy, where the consumption of alcohol is high; and is at its maximum in those parts of France where the wine consumption is small.

Alcoholism may be said to use up the human race "at both ends." It certainly increases mortality, and even if it does not diminish the birth-rate, it aids in the production of puny, unhealthy and degenerate offspring.

There is no doubt whatever, I need hardly say, that alcoholism does not account for the entire want of increase of the population of France, for the methods adopted by the French women are well known.

The Longevity of the Poor.—In England and Wales there are six hundred and fifty alms-houses, humorously called "work-houses," where the inmates do very little work, or none at all. An inquiry has lately been made at a hundred and thirty-nine of them to ascertain the number of inhabitants of these State-supported homes who have lived in the reigns of five monarchs—that is, who were born prior to the death of George III. in 1820. The answers are astonishing. In the alms-houses referred to there are no less than 2784 such inmates, giving an average of twenty per alms-house. The Camberwell institution heads the list with 133 five-reign inmates out of a total of 916. Bethual Green comes next with 109 out of 1051, and Hackney third, with 101 out of 1407. Strange to relate, these are all situated in densely populated parts of London, where the air must be far from pure, and where the drinking water is by no means clean. The old people, however—men as well as women—drink tea as often as they can get it, and they seldom touch water. Many of them dislike washing. The Liverpool institution contains the largest number of paupers in the country—3624, but of these only eighty-five have lived in the five reigns. The Cardigan (Wales) work-house contains the smallest number of residents—seventeen, of whom five have lived in five reigns! As far as Great Britain is concerned, it would be easy to prove that pensioners and paupers live long lives. In the United States, also, it is apparent that longevity is not with the rich, as a class. Indulgence in excessive quantities of albuminous food, and in alcoholic drinks, aided by late hours and lack of sufficient outdoor exercise, are inimical to longevity. There is plenty of evidence upon this subject at our disposal. For example, the *National Provisioner*, a New York commercial journal, has recently made an investigation with the object of ascertaining the difference between the death-rate in the twelfth ward, in which the plutocrats live, and the thirteenth, where the so-called "lower" classes exist. The former has sixty-one inhabitants to the acre, the latter 539. The figures show that, whether one takes the deaths of children under five or of the general population at all ages, the comparison between the two wards is unfavorable to the

twelfth ward in Harlem, in which very few families who can be correctly described as "poor" reside. The writer in the *Provisioner* concludes with these words: "The poorer classes, eating plainer and more nutritious foods, seem to prosper constitutionally better than the eaters of rich foods."

The Bacteria We Eat.—According to a Russian *savant*, M. Lakherbekoff, who carried out an elaborate inquiry into the bacterial quality of the milk supplied to St. Petersburg, the condition of affairs in that city is appalling. Milk described as the purest obtainable, was found to contain a minimum of over 10,000,000 and a maximum of over 83,000,000 bacteria in from twenty to twenty-five drops; while in other samples a minimum of 20,000,000 and a maximum of 114,000,000 were found. Such pollution as this is unnecessary, for milk under normal, healthy conditions contains very few bacteria as it issues from the cow. Indeed, some authorities consider that it is absolutely devoid of microbic life. If due precautions are taken in keeping the cows and their stable clean, if the milker is made to keep himself and his clothes in a thoroughly cleanly condition, milk can be placed upon the table which is practically free from all micro-organisms. Of course, the milk-cans require proper attention, and the cows ought to be under the supervision of a veterinary surgeon.

Butter is salted for two reasons: The comparatively unimportant one is that many persons like their butter (and almost all other food) to taste of sodic chloride. The important reason is that the quantity of micro-organisms contained in ordinary butter is so great that salt is necessary to suppress their activities. In England, however, there is little demand for butter which tastes to any extent of salt, and, as a consequence, the slightly salted and fresh article (of which a lump sufficient to fill a thimble contains only 20,000,000 bacteria) is in demand.

An Anæsthetic for an Elephant.—An elephant in the zoological gardens at Hanover, Germany, was recently found to be suffering from a growth upon the lower part of one of its hind feet, and it was decided to remove this malformation. In order to make the animal insensible a dose of six hundred grains of morphia in six bottles of rum was administered. About an hour after the elephant had consumed this combination narcosis was complete, and the operation was performed without any trouble.

A Rat-Eating Lunatic.—The following story has appeared in the Paris (France) daily newspapers: One of the great attractions at street fairs has been the wonderful rat-eating man. He was described as a ferocious savage, and looked it, having a complexion the exact hue of soot, while he went through an alarming performance of hideous contortions and grimaces, accompanied by jabbering and shrill shrieks in front of the

booth, into which he retired at intervals to discuss a meal of rats. It was announced by the showman that the animals before being eaten were not cooked in any way. The savage was said to swallow them alive. Attracted by the evident popularity of the spectacle among frequenters of fairs, the police investigated the matter, after the detectives attending the performance first as spectators. This convinced them that the showman did not delude the public. The savage undoubtedly did swallow live rats. Moreover, he accomplished another feat by drinking a glass of kerosene to wash down each animal. Further inquiry by the police revealed one of the most extraordinary cases on record of criminal abuse of human infirmity. It was found that the so-called savage was, in reality, a lunatic who had escaped from an asylum. The state of the man's mind explained his behavior, but no explanation is given of how his digestive system stood this diet of live rats and kerosene. The poor fellow has been rescued from his employers, who were making a fortune out of the gruesome and melancholy exhibition of his infirmity; and these human monsters, who were encouraging a lunatic's perversions in order to fill their own pockets, have been arrested. Can such a story be true? Let us hope that it is merely a French form of "yellow journalism."

Food Adulteration—Artificial Cinnamon and "Finest Olive Oil."—A native of Ceylon, named Appo, has discovered a method of making artificial cinnamon. The adulterant which he uses for cinnamon is guava, or jungle bark, which costs about twelve cents per pound at Colombo. This bark is carefully peeled, prepared and dried like cinnamon, and resembles it very closely in appearance. The sweet odor and the still sweeter taste peculiar to cinnamon are obtained by soaking the bark in water containing a small quantity of cinnamon oil, and afterwards, when dry, by touching the end of each bundle of the "sham" cinnamon sticks with a cloth saturated with the same oil.

As the discovery of this fraud is new, no suggestions for driving Mr. Appo out of business have yet been made. But it would be interesting to know if there exists any kind of food, from coffee to carrots, which is not adulterated. It is true that many so-called "substitutes" are harmless; but if a buyer pays for a certain article, he ought to receive that article and nothing else.

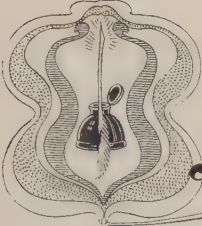
Cotton-seed oil is as good an article of diet, when properly purified, as olive oil; and the difference in taste between the two must be very slight, if any exists. What is usually sold as "pure olive oil" comes from France, and is quite expensive. Italy has placed so high a tariff upon the importation of cotton-seed oil that it is virtually excluded. France, upon the other hand, last year imported from the United States as much as 10,900,000 gallons out of a total export to all countries of 44,000,000. Germany, the next largest customer, only took 3,800,000 gallons. If

the French do not purify the cotton-seed oil and then export it as "the product of the finest olives," what becomes of the large quantity imported?

Vaccination and the Grip.—Dr. F. C. Gram, the able registrar of the Health Department of this city (Buffalo, New York) reports that there appears to be a connection between vaccination and the disappearance of grip. The health authorities of Buffalo have recently concluded a general vaccination, the work being done at a time when the city was suffering from an epidemic of grip of a severe type. The latter disorder began to disappear as soon as the results of vaccination manifested themselves. Dr. Gram experimented upon himself and upon others in whom grip had been diagnosed, and in every case the disease was aborted, leaving the patient without any of those annoying sequels which are so common and which seem to trouble the sufferer for months after the disease itself has passed away. (The above facts are taken from the *New York Times*, but Dr. Gram has authorized me to say that they are accurate.) If this doctrine is correct—and it would be difficult to find a more cautious observer than the registrar of the Buffalo Health Department—vaccination may, in time, become popular with many of the people who at present so strongly object to it. A great part of the popular opposition to compulsory vaccination is based upon a misconception. I have talked to seven persons in the past six months who supposed that the process consisted of the inoculation of *small-pox*. It is true that this method was given a trial in England and was prohibited by statute as long ago as 1840.

Death of William R. Warner, Sr.—Mr. William R. Warner, Sr., of the well-known firm of Wm. R. Warner & Co., Philadelphia, died Wednesday morning, April 3d. For fifty years Mr. Warner was a prominent figure in business life, and during the greater part of that period was closely identified with the medical profession. Hundreds of physicians throughout America will regard his death as a personal loss. The business so honorably and successfully conducted by Mr. Warner and his associates will be continued under the management of Mr. William Warner, Jr.

She Liked the Hospital.—Not long ago at a provincial hospital an old woman, who was being discharged completely cured, was having a last interview with the house physician. "Well," he said, "you have to speak well of the hospital now, won't you?" And the old woman replied: "Ay, that I will, doctor. But, sure, I never spoke ill of it. My 'usband died here."—*Current Literature*.



Personal Comment



The World's Fair Commissioners appointed by President McKinley have assembled and organized. The Louisiana Purchase Exposition Company has been duly incorporated, and will have over \$15,000,000 to expend for a great World's Fair in St. Louis in 1903. It will commemorate one of the greatest events in the history of America—the acquisition from France of the Louisiana Purchase.

The INTERSTATE MEDICAL JOURNAL is published from the metropolis of the Louisiana Purchase, and thousands of its readers reside in the states organized from that territory. We feel assured that this exposition, unlike others held in the past, will commemorate the great work done in medicine and surgery, and we invite our readers to suggest suitable forms of recognition.

From time to time we will devote space to the consideration of such features of the Louisiana Purchase Exposition as seem relative to interests of our readers.

The Louisiana Purchase.—A nation which is in a healthy condition tends to increase in population and in wealth, and this surplus wealth and population creates a demand for new territory to settle and exploit. Expansion is a natural, and, ultimately, perhaps, a necessary incident of healthy national development. So general is this truth that it may be put down as a law of political science, that all nations tend to extend their boundaries to the limit of the territorial unity in which they find themselves established. From one point of view the whole history of the United States is merely a commentary on this thesis. At the beginning of the seventeenth century three European countries—omitting the Dutch, whose possessions were soon absorbed by the English—had staked out their claims in the new continent; Spain in Florida and the southwest; France along the St. Lawrence and the lakes; England on the eastern coast from Maine to Georgia. Conflict was inevitable; the problem was which would win. Territorially, the history of the United States is the history of the success of the English—of their steady march westward. In this westward movement they came in contact first with the French in the valley of the upper Ohio; the French and Indian war. 1756–1763 marks the expulsion of this nation from the American continent. Incidentally, before the westward movement was resumed, the connection between the

colonies and the mother country was severed, and the American state was established; then the pressure westward was resumed with redoubled force.

The next problem was the expulsion of the Spanish from the south and southwest. Step by step this was accomplished—first, Louisiana, then Florida, Texas, the north Mexican states and California, were acquired. That Louisiana was actually acquired from France, and Texas, New Mexico, and California from Mexico, is a fact of merely nominal importance; this was the region which Spain had originally staked out as her own, and the real conflict was one of American *versus* Spanish control.

The term Louisiana was for many years previous to, and after the acquisition of the territory by the United States, a vague one. During the last quarter of the seventeenth century the French explorer, La Salle, reached the mouth of the Mississippi river, and at the very close of the century, 1699, the French colony of Louisiana was planted by the Sieur d'Iberville, near the present site of New Orleans. The aim of the French was to connect the new colony of Louisiana with the old one of Canada, by a chain of forts which would guard every gateway from the west to the east. As their schemes were grand, so their descriptions were vague. The only official description which the French ever gave of Louisiana is contained in the charter grant of the colony to Crozat, in the year 1712. It was then said to be bounded "by New Mexico and the lands of the English Carolina from the edge of the sea, as far as the Illinois, together with the river St. Philip, heretofore called the Missourys, with all the countries, territories, lakes, and the rivers which fall directly or indirectly into that part of the river St. Lewis" (Mississippi).

Such was Louisiana when France possessed it. The treaty of Paris in 1763 marked the end of French empire in America. All territory east of the Mississippi, save New Orleans, was ceded by France to England, and at the same time England acquired Florida from Spain. A few months earlier, however, France had ceded all her territory west of the Mississippi, including New Orleans, to Spain. The boundary between the Spanish and English possessions was now the Mississippi and the Iberville rivers, and such it remained until 1783, when Spain again acquired Florida from England. During all this time the term "Louisiana" was applied to the territory west of the Mississippi and the Iberville rivers, which Spain had acquired from France. Such was Louisiana in the hands of Spain.

From 1783 to 1800, settlement of the southwest was rapid. By the close of the century the American frontier had been carried to the very edge of the Spanish possessions. But the Mississippi was no barrier to the enterprising Americans, and they quickly passed over into Florida and Louisiana. It may well be imagined that the conservative Catholic Spaniard had no love for the lawless frontiersman, yet they knew themselves to be no match for him in colonizing and holding the vast region of Louisiana. Conflicts like the capture of Philip Nolan in 1800 might, they

feared, bring on a war with the young republic, which would end with the conquest, not only of Louisiana, but also of the much more highly valued province of Mexico. To protect herself against the aggressions of the United States, Spain was therefore willing to cede the almost worthless (to her) province of Louisiana to some other country, which would form a buffer between herself and her enemy. At the same time Napoleon was dreaming of a great colonial empire. He would regain the lost possessions of France in America. Spanish fear and French ambition resulted, therefore, in the treaty of San Ildefonso, in the year 1800, by which Spain ceded to France the province of Louisiana, "with the same extent that it now has in the hands of Spain and that it had when France possessed it." The next year Napoleon occupied the island of Haiti, preparatory to the occupation of Louisiana, and one year later the Spanish Intendant at New Orleans closed the Mississippi to American vessels. The free navigation of the Mississippi was a matter of vital importance, because that river furnished the commercial outlet for the whole southwest. The act of the Spanish Intendant was looked upon as representative of the future policy of the French. The danger was imminent, and the whole southwest clamored for immediate interference by the government.

President Jefferson professed aversion to war and friendship for the French. Yet he was forced to take action because, aside from the fact that his party demanded it, he clearly perceived the necessity of controlling the Mississippi river. "The day that France takes possession of the Mississippi," he wrote in pathetic surrender of all his pet theories, "we must marry ourselves to the British fleet and nation." But war should serve only when negotiations failed. Livingston was instructed to secure, if possible, a cessation of New Orleans, and so much of west Florida as might be necessary to give the United States control of the Mississippi. Monroe was appointed minister extraordinary to aid in the negotiations, and two millions of dollars were appropriated for the purchase.

For more than a month Livingston wearied the First Consul with argument, remonstrance, threats, to convince him how much to his advantage the cession of New Orleans would be. It was a vain effort; his only satisfaction was the smooth phrases of Talleyrand. New Orleans would be retained, since it alone made Louisiana valuable. But with characteristic suddenness Napoleon changed his plans absolutely. Reverses in Haiti had modified his ardor for a colonial empire, which was impossible in any case without the support of a powerful navy. England, jealous of the transference of Louisiana to France, would, he perceived, reopen the war by possessing herself of that province, preparations for which were, perhaps, even at that moment being made. He would checkmate her by surrendering the whole of Louisiana to the United States. It would thus be forever lost to England. On April 11, 1803, he broached the subject to his ministers, Talleyrand, Barbé-Marbois and Decrès. "I know the full value of Louisiana, and I have been desirous of repairing

the fault of the French negotiator who abandoned it in 1763. A few lines of a treaty have restored it to me, and I have scarcely recovered it when I must expect to lose it. But if it escapes from me, it shall one day cost dearer to those who oblige me to strip myself of it, than to those to whom I wish to deliver it. The English have successively taken from France: Canada, Cape Breton, Newfoundland, Nova Scotia, and the richest portion of Asia. They are engaged in exciting troubles in St. Domingo. They shall not have the Mississippi, which they covet. Louisiana is nothing in comparison with their conquests in all parts of the globe, and yet the jealousy they feel at the restoration of this colony to the sovereignty of France, acquaints me with their wish to take possession of it, and it is thus they will begin the war. They have twenty ships of war in the Gulf of Mexico; they sail over those seas as sovereigns, whilst our affairs at St. Domingo have been growing worse every day since the death of Leclerc. The conquest of Louisiana would be easy, if they only took the trouble to make a descent there. I have not a moment to lose in putting it out of their reach. I know not whether they are not already there. It is their usual course, and if I had been in their place I would not have waited. I wish, if there is still time, to take away from them any idea that they may have of ever possessing that colony. I think of ceding it to the United States. I can scarcely say that I cede it to them, for it is not yet in our possession. If, however, I leave the least time to our enemies, I shall transmit only an empty title to those republicans whose friendship I seek. They only ask of me one town in Louisiana; but I already consider the colony as lost, and it appears to me that, in the hands of this growing power, it will be more useful to the policy and even to the commerce of France, than if I should attempt to keep it." Barbé-Marbois confirmed the First Consul in his resolution. Decrès opposed the plan, dilating on the importance of colonies to the welfare of France; but Napoleon cut short all discussion by the following outbreak: "Irresolution and deliberation are no longer in season. I renounce Louisiana. It is not only New Orleans that I will cede, it is the whole colony without any reservation. I know the price of what I shall abandon, and have sufficiently proved the importance that I attach to this province, since my first diplomatic act with Spain had for its object its recovery. I renounce it with the greatest regret. To attempt obstinately to retain it would be folly. I direct you to negotiate this affair with the envoys of the United States. Do not even await the arrival of Mr. Monroe; have an interview this very day with Mr. Livingston. But I require a great deal of money for this war, and I would not like to commence it with new contributions. . . . I will be moderate, in consideration of the necessity in which I am of making a sale. But keep this to yourself. I want fifty millions, and for less than that sum I will not treat; I would rather make a desperate attempt to keep these fine countries. To-morrow you shall have full power."

On the same day, therefore, Livingston was astonished by the request

to set a price on the whole of Louisiana. Without instructions he offered twenty millions of francs; some weeks of bargaining fixed the price at eighty millions.

Fortunately or unfortunately, the treaty contained no accurate description of the bounds of the territory acquired. In the words of the treaty of San Ildefonso, it was stated that Louisiana was ceded to the United States, "with the same extent that it now has in the hands of Spain and that it had when France possessed it." This left both the eastern and the western boundaries still indefinite. With the acquisition of Florida in 1819, the question of the eastern boundary was no longer of any practical importance. The treaty by which Florida was ceded to the United States settled the western boundary as follows: the Sabine river from its mouth to the thirty-second degree of latitude; thence due north to the Red river, along the Red river to the one hundredth degree of longitude west from London; thence due north to the Arkansas river, along the Arkansas river to its source; thence due north to the forty-second degree of latitude; thence west to the Pacific ocean.

CARL BECKER.

Pennsylvania State College.

His Diagnosis.—The boy's name is Rufus, and he was busily engaged in polishing the doctor's shoes while he was being shaved. As was his custom, the doctor said: "How are you feeling, Rufus?" "I ain't much. Kindly poohly, thank you, doctah," answered the boy. "What's the matter?" "Paralysis." "What?" "Paralysis." Had the doctor not been so well acquainted with the negro race, he might have allowed himself to show astonishment. As it was, he determined to see what would result from further inquiries. "Where's your paralysis?" he asked kindly. Rufus was drawing a rag swiftly across the left shoe. "In the right hip, doctah," he answered. "It's probably rheumatism," suggested the physician. "No, indeed. It's paralysis. I reckon I knows rheumatism and I knows paralysis. This is sutenly paralysis." The doctor drew a good-sized pin from the lapel of his coat. "Well, Rufus," he said, seriously, "there is only one way to tell. Come here. I'm going to jab this pin in your hip. If it hurts, then you have rheumatism. If you don't feel it, then you are right and you have paralysis." The boy did not rise but drew the rag thoughtfully across the shoe. Finally he said: "Doctah, I reckon you mus' know more about them things than I do. I know it ain't nothin' but jes' common ole misery."—*Exchange*.

MEDICAL TREATMENT.

The Diazo-Reaction in Small-Pox.—Sergeant states that the diazo-reaction test in small-pox gave reaction in nine out of eleven cases.

During the period of suppuration it was present in thirty-one out of thirty-five. During desiccation it was found but nine times in fifty-one.

This reaction is, therefore, almost constant in the course of variola in full evolution, and in the author's opinion, this test should be of some value in distinguishing between variola and chicken-pox. In the latter disease, the diazo-reaction is absent, as a rule—just the converse of what obtains in small-pox.

Prevention of Mosquito Bites.—According to an exchange, there is nothing that equals kerosene as a topical application to prevent mosquitoes from biting. By suspending a small flannel rag wet with kerosene at the open door or window it will keep them out of the room. Rub some over the hands and face and a little in the hair, and it is a sure defense against a roomful of mosquitoes.

Physician Not Obligated to Answer Call.—The supreme court of Indiana has recently decided that a licensed physician is not legally obliged to attend a patient when called, although he has been the family physician of the patient in times past. Dr. Weddingfield refused to attend a patient, although he had been called three times. The patient died, and it was charged that her death was caused by the doctor's refusal to respond to the call. He was sued for \$10,000 damages.

Solid Hydrogen.—We learn from a contemporary that in Prof. Dewar's paper on the solidification of hydrogen, read before the British association, that solid hydrogen presents the appearance of frozen water, and not, as had been anticipated by many, of frozen mercury; hence, it is now definitely decided that it is not metallic. The temperature of the solid is 16° absolute at thirty-five millimetres pressure, and it melts at 16° or 17° absolute, the practical limit of the temperature obtainable by its evaporation being 14° or 15° absolute. Thus the last of the old gas has been solidified. It was further mentioned, in connection with these statements, that Prof. Dewar had succeeded in liquefying helium.

A Case of Pneumopericardium.—R. Sievers narrates a case of pneumopericardium where the fluid and air gained entrance into the pericardium through the involvement of the pleural cavity with pus and air. The cause of the condition was a gangrene of the left lung.—*Berliner klin. Wochenschrift*, No. 12.

Experimental Work on Cirrhosis of the Liver.—Marchwald in the *Muench. med. Wochenschrift*, No. 13, narrates his experimental work on frogs and mice, in his endeavor to find the etiology of liver cirrhosis. Frogs and mice were daily injected with small doses of antipyrin. Cirrhosis of the livers of these animals took place as a reaction on the part of the organism, the liver tissue being destroyed. Injection of larger doses of the drug led to complete destruction of the liver tissue.

Hydatid Cyst of the Liver in a Child.—M. Broca speaks of, a case of hydatid cyst of the liver in a child (*La Semaine Med.*, Nos. 12 and 13) and the method of operation for it, following the operation devised by Delbet. The operation is made by resection of the sac and complete suture of the cyst wall, without drainage.

Naphthalan in Eczema.—The treatment of eczema is various. Wherever we find a disease with many remedies recommended for its cure, it is a natural supposition that not one of the many remedies has much efficacy. This is true of eczema. The results of treatment with naphthalan, especially in the treatment of eczema of the outer ear or auricle, are very flattering, and warrant us in indorsing it for others' trial. We do not do so with diffidence, because we have seen the effects of treatment with it and can conscientiously recommend it. It is a fact that this kind of eczema is often most resistant to all treatment. It is also a fact that naphthalan has worked well here in this class of cases, and so deserves more trials.

Conjunctivitis Typical to La Grippe.—Like all infectious diseases, la grippe brings with it an affection of the eye—or, to be exact, all parts of the eye, like all parts of the body, may be attacked by it. One affection, however, is specific in this disease—the “grippe conjunctivitis.” The patient comes complaining of heaviness of the lids; a sticky, yellow secretion in the morning, and the conjunctiva of the ball full of injected small vessels, and upon drawing down the lid the palpebral conjunctiva is full of granulations, in appearance resembling trachoma, but with the conjunctival fold perfectly free of these excrescences; and this fact, linked with the previous history of “the severe cold” and sudden appearance of the affliction, will enable us to make the diagnosis. The usual sandy feeling of the eye accompanies this trouble.

Application of a mixture of four ounces of water, three drachms deodorized tincture of opium, and one drachm of boric acid should be ordered in the following manner: The solution is to be kept cold or very cool; a linen or cotton pad (very thin) should be dipped in the solution, squeezed out and applied to the closed eye for two minutes, moistened again, and this proceeding continued for ten to fifteen minutes, four times daily. Avoidance of reading and strong light recommended. Before retiring apply to the lids a salve of—

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 Vaselini,
 Lanolini.....aa ʒ j
 M. et ft. ungt.

Not more of it to be used than necessary to wet the finger and spread over the lids. A few days of this treatment will give ready relief, unless other complications manifest themselves.

A gripe keratitis, resembling the malarial type very closely, is frequently found. The endless variety of the affections of the deeper structures of the eye, sometimes following gripe, would exceed the frame of these remarks, and are not in the scope of the general practitioner.

The Broom as a Spreader of Disease.—Dust is now generally recognized as one of the most efficient vehicles of germs of disease. Dr. Max Girdansky finds the broom to be one of the most active agents in sending them into the air, where they are diffused by whatever breezes may be blowing there. The housewife digs the dust out of her carpets and stirs it out of the quiet corners where it has accumulated, wearing an old dress and covering her head while she leaves her lungs exposed, then shakes her rugs in the yard; and the street sweeper transfers the dust he has charge of from the pavement to the atmosphere, where we can breathe our fill of consumption from day to day. Therefore, the author holds, the broom, “far from serving any hygienic purpose, is the cause of the maintenance of organic dust in the atmosphere of the large cities of the world, and as such is the most important cause of the existence and spread of tuberculosis.” Further, the carpet is pronounced “an unhygienic article, serving as a fine breeding ground for vegetable parasites, necessitating the use of the broom and the duster, and thereby becoming a reason for the existence of organic dust.” As the only proper and safe way of procuring the cleanliness of the floors and streets of our large cities, Dr. Girdansky advises the free use of water in the shape of showers, or with sprinkling wagons, hose, mops, etc., and that all floors and floor coverings of the house and the street be so constructed as to facilitate the free use of water in these ways.—*Popular Science Monthly*.

The Burlington Route to St. Paul.—The Burlington Route has two main lines from St. Louis to St. Paul, one on each side of the Mississippi river. Physicians contemplating attending the Military Surgeons Association, May 29–31, the American Academy of Medicine, June 1–3, the American Medical Association, June 4–7, will find the best service by the Twin City Express, leaving St. Louis at 2:05 P. M., and reaching St. Paul the following morning at 8:40. This train carries buffet sleepers and coaches. The East Side line leaves St. Louis at 1:21 A. M., arriving at St. Paul the following morning. A special rate of one fare plus \$2.00 has been made for the round trip (from St. Louis, \$18.00).

SURGICAL SUGGESTIONS.

Thyroid Surgery.—At the recent German Surgical Congress, Kocher read the leading article on surgery of the thyroid. His conclusions, after operating his second thousand cases, were the thyroid treatment is useless and often harmful. The amount of iodine in gland is diminished in these cases and can be best increased by feeding the cases phosphate of soda, as demonstrated by his son's experiments. It was suggested that lack of albuminized food in the subjects of Switzerland might account for this, and that absence of goitre in the peoples who live on highly albuminized food—the English, for example—might indicate the reverse condition of nutrition, where sufficient phosphorus is obtained to maintain the normal condition. His mortality is about two per cent. The article referred especially to thoracic goitre. The tumor sometimes extends as low as the second rib. Percussion is useful, and the X-ray has been used by him to demonstrate the condition. It is very necessary to first ligate the isthmus, which is more perfectly done after crushing with a forcep. Having everything tied and divided above, avoids serious embarrassment by hemorrhage later, when tumor is extracted. A special spatula spoon is used for delivering the tumor. Cocaine, one per cent., is used for anesthesia without exception.

Roentgen Rays in Obstetrical Work.—The X-rays have been utilized in nearly every branch of surgery and also in some parts of medicine, and now the latest advance is the use of these rays in obstetrics. Wromser, of Basel, has recommended that the X-rays be used to ascertain the condition of the pelves of pregnant women. In other words, he hopes to be able to recognize pathologic conditions in the bony pelves of pregnant women by these means. He gives some reports on this subject where he recognized pathologic bony changes in four cases; but, so far as we can observe, his deductions are practically *nil*, so far as having any bearing on the cases. We are much inclined to believe that the X-rays in obstetrics are only a refinement and will never have any practical usage in this department of medicine. That we can recognize bony imperfections by other means sufficiently to make accurate diagnoses is well known, and up to the present writing we fail to see just how the Roentgen rays will help us out in these "straits." So we presume that obstetricians will continue to live and die without utilizing the X-rays.

MEDICAL SOCIETIES.

Meeting of the American Medical Editors' Association.—The annual business meeting of the American Medical Editors' Association will convene in the library rooms of the Ramsey County Medical Society, Lowry Arcade building, St. Paul, at 2.30 P. M., Monday, June 3d. The Lowry Arcade building is situated in St. Peter street, between Fourth and Fifth.

This association, as implied in the name, consists of medical editors of the United States. Meetings are held annually, coincident with the American Medical Association. The aims of the association are the advancement of medical journalism, the foundation of an ethical press in medicine, and the improvement of the medical profession in general. The membership includes the leading medical writers and editors of the country.

The meeting this year will be a most successful one, both from the point of presentation of valuable papers and the energetic work of the members of the association which will be made manifest at the meeting. The preliminary program is calculated to interest and benefit every medical editor. A partial list of papers includes:

President's Address, Dr. Alex. J. Stone, of St. Paul.

Relative Value of Medical Advertising, by Dr. John Punton, of Kansas City, Missouri.

Paper, subject unannounced, by Dr. John V. Shoemaker, of Philadelphia.

Improvements in Medical Education, by Dudley S. Reynolds, of Louisville.

Some Thoughts on the Ethics of Medical Journalism, by Burnside Foster, of St. Paul.

Editorial Corps and Medical Journalism, by Dr. George F. Butler, of Alma, Michigan.

A Journalistic Review of the Year, by Dr. Chas. Wood Fassett, of St. Joseph, Missouri.

Relation of the Medical Editor to Original Articles, by Harold Moyer, of Chicago; and

Paper, subject unannounced, by Dr. George H. Simmons, of Chicago.

The annual dinner of the association will be held at 9 P. M., June 3d, reservation of plates should be made at once. Membership applications and titles of additional papers can be sent to Alexander J. Stone, Lowry Arcade, St. Paul, president, or O. F. Ball, Century building, St. Louis, secretary.



The History of Medicine in the United States. By FRANCIS RANDOLPH PACKARD, M. D. Illustrated. Octavo, pages 542. J. B. Lippincott Company, Philadelphia and London. 1901.

Packard's history describes the rise of American medicine from the period of the colonization along the Atlantic coast to the time of the discovery of anæsthesia. The many facts presented in this book have been obtained as a result of long and laborious research, not only in works which are strictly medical, but along the lines of contemporary literature; and they are presented in a clear and instructive manner. The field has been carefully scanned; and the physician who is interested in early American medicine will profit by Dr. Packard's work. Among the most interesting chapters are those on early medical schools, the earliest hospitals, medical legislation in the colonies, and the discovery of anæsthesia.

International Clinics. Volume I., Eleventh Series, 1901. A Quarterly of Clinical Lectures and Especially Prepared Articles on Medicine, Surgery, etc. By Leading Members of the Medical Profession throughout the World. Philadelphia: J. B. Lippincott. 1901.

The first volume of the eleventh series of the well-known work "International Clinics" is truly an exceptionally good number. The contents include excellent *resumes* of the year's work in medicine and surgery. The original articles on timely subjects are each all well worth the attention of the busiest man in practice. The articles which deserve particular mention are those on the infectious diseases. Another excellent article of great interest to a certain class is that by Walmsey on photomicrography. The entire subject of photomicrography is gone over in a manner which will enable the novice to take up the work and do well at it simply by following the directions and suggestions laid down in the article.

We take pleasure in recommending the book to the practitioner and student of medicine.

An American Text-Book of Diseases of Children. By American Teachers. Edited by LOUIS STARR, M. D., Assisted by THOMPSON S. WESTCOTT, M. D. Second edition, revised. Philadelphia: W. B. Saunders. 1898.

This excellent work is now before us in its second edition. While no very decidedly new features have been added to it, it shows the good ef-

fects of revision. As to its merits as a text-book, the names of the galaxy of talented men who have contributed to its life would insure that without the reviewer's modest words of criticism. We can only say that the book reflects well the stamp of its brilliant authorship. Not a page contains anything which is not germane to the subject, and every word is of value. It is, indeed, difficult to find a more valuable book in medical literature in English that compares with the one in hand. The important subject of infant-feeding is well discussed by the masters who know whereof they speak. The illustrations help out the text. It is a fine work.

The Care of the Baby. A Manual for Mothers and Nurses. By J. CROZIER GRIFFITH, M. D., Clinical Professor of Diseases of Children in the Hospital of the University of Pennsylvania. Second Edition, Revised. Philadelphia: W. B. Saunders. 1899.

Books of this kind have their place in literature. There is growing up at this latter day a class of people who seem anxious to instruct themselves on matters pertaining to hygiene and disease in general. This is a book that is written for the mother who wishes to know the *rationale* of caring for her child. It is excellently written, and will always reflect well on its author. We bespeak a pronounced success for it from the class referred to. Nurses will do well to buy the book and read it. They cannot fail to be instructed by following its teachings.

Annual Meetings.—Annual meeting military surgeons of the United States, May 29–31, 1901; annual meeting American Academy of Medicine, June 1–3, 1901; annual meeting American Medical Association, June 4–7, 1901—at St. Paul, Minnesota.

RATE.—One first-class normal tariff (not temporarily reduced) fare, plus \$2.00, for the round trip.

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LIMIT.—Tickets to be limited to continuous passage in each direction; going trip to commence date of sale, and return trip date of execution; good returning from St. Paul not earlier than May 29th nor later than June 15, 1901; *except*, that if ticket is deposited with the joint agent not earlier than May 29th nor later than June 15th, an extension of time will be granted leaving St. Paul up to and including July 15, 1901. Execution fee of fifty cents will be charged regardless of whether extension of limit is secured or not. When extension of limit is secured, the execution fee of fifty cents must be paid at the time ticket is deposited.

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THERAPEUTIC NOTES.

Thermol in the Treatment of Pneumonia.—(From records of St. Louis City Hospital. By James A. Matlack, M. D., of St. Louis, Missouri.) Although the past winter has, on the whole, been a mild one, there has apparently been no decrease in the number of cases of pneumonia. The St. Louis City Hospital receives the worst of these cases, the patient usually entering in a late stage of the disease, having had no treatment, and suffering from neglect. It is upon these severe and neglected cases that the value of therapeutic measures can best be tested; for mild cases, or those seen at the onset, usually respond readily to any form of treatment.

The hospital staff has been diligent in combating the disease, and every known method of treatment has been resorted to. Especially good results have been obtained from the use of thermol, $C_{14}H_{15}NO$. The following report of cases treated by thermol will illustrate its action:

CHART I.

CASE 1.—D. E., aged thirty, laborer; admitted February 23, 1901. Habits irregular; drinks to excess. Has had syphilis and gonorrhœa.

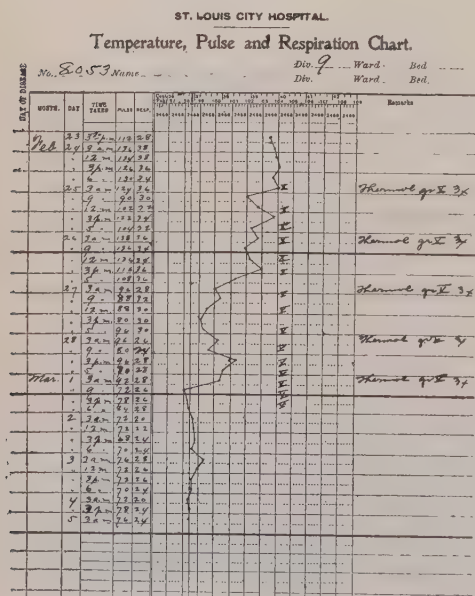


Chart 1.

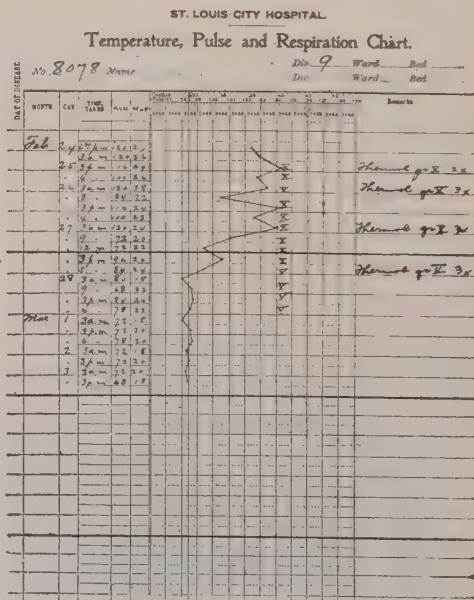


Chart 2.

Became ill five days before entrance into hospital. Illness came on suddenly, following exposure. Ushered in by chill, with high rise in temperature. Severe cough; blood-streaked expectoration; headache; mental



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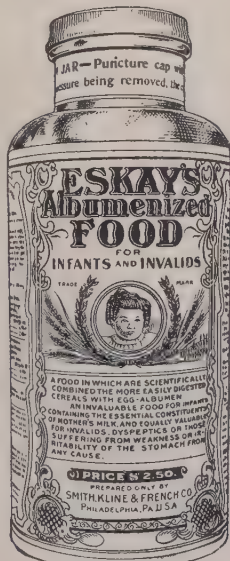
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apathy; vomiting and diarrhœa. Over left lower lobe there is dullness; increased tactile fremitus, tubular breathing and bronchophony. Different moist rales over balance of chest. Patient was in critical condition upon entrance and remained so for several days. Thermol administered on evening of February 24th. First dose of thermol (gr. x) brought temperature down two degrees, as will be noted on chart, with corresponding improvement in pulse. Patient improved rapidly, and resolution began on the 27th. Temperature became normal on March 1st, and patient had an uninterrupted recovery.

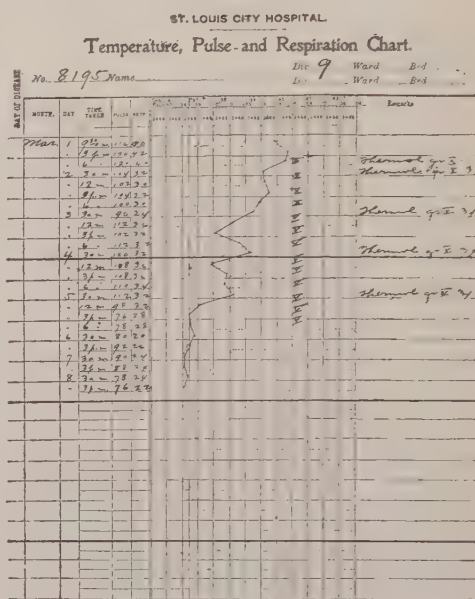
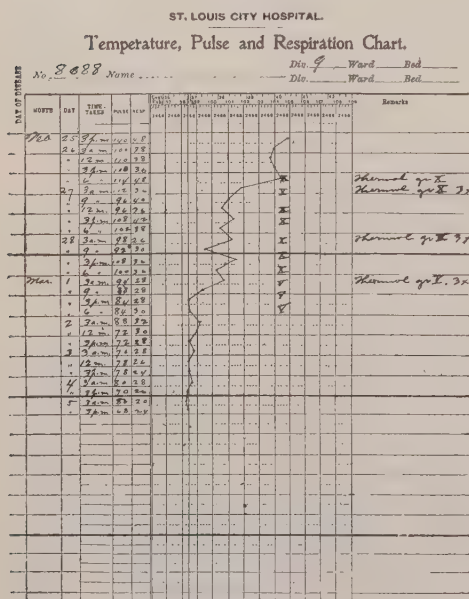


CHART II.

CASE 2.—S. F., aged twenty-seven, cook; admitted February 24, 1901. Habits, family history and personal history good. Twelve hours before admission into hospital patient had a severe chill, followed by high fever. Has severe pain in right side; cough with rusty-colored expectoration; face flushed and anxious. Over right lower lobe, anteriorly and posteriorly, there is increased vocal fremitus, absent vesicular murmur, relative dullness and crepitant rales. Pulse weak and compressible. Temperature on entrance was 102.50; rose next day to 104.40. Thermol administered in ten-grain doses; temperature readily controlled, with decided improvement in all symptoms. Temperature returned to normal on fourth day of disease, and convalescence was rapid.

CHART III.

CASE 3.—Z. P., aged thirty-six, laborer; admitted February 25, 1901. Habits and personal history good. Mother died of phthisis. Patient became ill four days prior to entrance into hospital. Following exposure,

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he had a chill, followed by fever and sweating; slight cough, with brown-streaked expectoration; pain in left side; insomnia and great prostration. Over middle and lower lobes of left lung, anteriorly and posteriorly, there is absolute dullness, with greatly increased tactile fremitus, tubular breathing and bronchophony. Pleuritic friction sound in left infrascapular region. Mucous rales over upper lobes of both lungs. Heart action weak and irregular. Pulse rapid and compressible. Face cyanotic. Temperature on entrance was 104.8, and remained high until administration of thermol was commenced, when range of temperature immediately became lower; character of pulse improved and cyanosis disappeared. Patient made uninterrupted recovery.

CHART IV.

CASE 4.—F. F., aged thirty-two, laborer; admitted March 1, 1901. Habits and personal history fair. Four days before entrance into hospital patient had chill followed by fever; headache and nausea; pain in right side; cough, with expectoration of tenacious, blood-streaked mucus. Absolute dullness over upper and middle lobes of right lung, with increased tactile fremitus, tubular breathing and bronchophony. Pulse rapid and weak. Face flushed, with tendency to cyanosis. Temperature ranging in neighborhood of 104.0 on entrance. After administration of thermol temperature range became lower, circulation improved and patient became comfortable. Crisis occurred on fifth day after entrance, and patient rapidly regained health.

Pneumonia is essentially a disease which tends to run a varied course. It is but too true that a typical case should follow certain lines, but it is also true that perfect heart action is necessary in all events and at all times. The symptoms that demand treatment in pneumonia are high febrile conditions, delirium, cerebral symptoms and failing cardiac power. With a successful combating of these untoward symptoms it may fairly well be promised that the patient will get well. In some cases we do not need medical treatment at all; in other cases it is absolutely necessary to have remedial agents at work that will take care of the oppressed nervous and cardiac centers and tide the patient over until resolution sets in. It is in the class of cases referred to that the effects of any given agent can best be tested. The cases in hand need but little comment, as inspection of the temperature charts will show conclusively that the therapy adopted was productive of the good results which we wish for in this disease, and that the end in view was well accomplished by the use of thermol. In none of these cases was any remedy except thermol used, and in every case was improvement immediate and recovery rapid. It should be especially noted that there was no tendency to cardiac depression—which is often too true with many of the remedies used in the treatment of this disease—but that, on the contrary, the circulation always became better after the exhibition of the drug. Antipyresis was successfully accomplished and there was no need for calling into use the digitalis group of drugs. It is a fact that thermol is a safe agent to use in the treatment of pneumonia; it is also a fact that it has decided effects for the better on untoward features of the disease. These are two qualities which stamp the worth of any drug: *first*, that it does good, and, *secondly*, that it does no harm. Thermol is

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therefore to be strongly recommended in the treatment of croupous pneumonia.

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Pulv. Bioplasm.—(W. W. Taylor, M. D., 418 W. Fifty-seventh street, New York.)—Miss M. J., a maiden lady, aged sixty-one, applied to me complaining of sciatica. She had also taken such quantities of potassa and other drugs as to render her stomach intolerant of medicine or food, which condition had persisted for several days. I prescribed

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Div. pulves No. xx
Sig.—One powder four times daily.

Improvement was noticed from the second day. Prepared food was retained and caused but little discomfort, and gradually the patient's digestion was restored to normal. On the third day, after taking twelve powders, I was gratified to notice that the sciatic pains were considerably lessened, and I advised, in addition to galvanism, hot sea salt baths before retiring, nightly. Only one week of this treatment was necessary to bring such a radical change to my patient that she is almost entirely free from pain, eats meats and vegetables, and her stomach is in a perfectly normal condition. I have secured equally favorable results in several cases of neurasthenia, and also in the anorexia, debility and night-sweats of phthisis. It is derived from the pitcher plant, and seems destined to be of great therapeutic value.

Dr. P. Dolche states that quinine has an important field of usefulness in the treatment of uterine affections. It is very useful in congestive dysmenorrhœa, by diminishing the flow of blood to the genital organs, and to dysmenorrhœa due to neuralgia of the genital organs. It may also prove useful in amenorrhœa, by stimulating the contraction of the uterus and of the utero-ovarian vessels, which would in their turn stimulate the dormant ovulation. In metrorrhagia and menorrhagia it is effective. The quinine should be given in 8 to 24-grain doses, and may be combined with digitalis and ergot, as may seem indicated.